# SYSTEMS MANAGEMENT

# **Entire Operations**

User's Guide

Version 3.2.1



# Order Number: NOP321-020ALL This document applies to Version 3.2.1 of Entire Operations and to all subsequent releases. Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions. © January 2001, Software AG All rights reserved Software AG and/or all Software AG products are either trademarks or registered trademarks of Software AG. Other products and company names mentioned herein may be the trademarks of their respective owners.

# **Table of Contents**

User's Guide - Overview			•		•	•					•			1
User's Guide - Overview														1
Introduction														3
Introduction														3
What Is Entire Operation	ıs?									•				3
Contents of This Docume	entati	on												3
System Overview														5
System Overview														5
<b>User ID</b>														6
User ID														6
Owner														7
Owner														7
Job Network														8
Job Network														8
<b>Job</b>														9
Job														9
Sub-networks														10
Sub-networks														10
Time of Activation of a S	Sub-N	Jetw.												10
Link to the Main Networ	k													10
Run														10
<b>Logical Conditions</b>														12
Logical Conditions .														12
Input Conditions .														12
Output Conditions .														13
<b>Logical Prerequisites Check</b>														14
Logical Prerequisites Checl	k													14
Passive Wait														14
Exceptions from Passi	ve W	ait												14
Prerequisites Check acco	rding	to t	he R	oun	d Ro	bin I	Proce	dure						15
Events														17
Events														17
End-of-Job Checking and A	ction	S												18
End-of-Job Checking and A	Action	ıs												18
For Users of BS2000/OS	D													18
Resources														19
Resources														19
Mailboxes														20
Mailboxes														20
Mailbox SYSDBA .														20
<b>Operating System Server No</b>	odes													21
Operating System Server N	odes													21
<b>Master Data Base and Activ</b>	e Dat	ta Ba	ase											22
Master Data Base and Activ	ve Da	ta B	ase											22
<b>Monitor - Server</b>														23
Monitor - Server														23
Two Modes of Monitor (	Opera	tion						•						23

Subtask-s	•			•			. 23
Batch Task							. 23
Distributing Monitor Functions to Subtasks.							. 24
Monitor Start Network							. 25
Monitor Start Network							. 25
<b>Activation</b>							. 26
Activation							. 26
Terminology							. 26
Automatic Activation							. 26
Automatic Activation and Symbol Promptin	ıg.						. 27
Manual Activation							. 27
Run Number							. 29
Run Number							. 29
Schedules							. 30
Schedules							. 30
<b>Calendars</b>							. 31
Calendars							. 31
Symbol Tables							. 32
Symbol Tables							. 32
Symbol Replacement							. 32
Active Symbol Table							. 32
Symbol Escape Characters							. 33
Job Control Language - JCL							. 34
Job Control Language - JCL							. 34
Dynamic JCL Generation							. 35
Dynamic JCL Generation							. 35
Escape Character in Dynamic JCL Generation							. 35
Variables in Dynamically Generated JCL .							. 35
Sample JCL							. 36
Symbol Table Variables							. 36
Natural System Variables							. 36
· ·							. 36
Symbols in Natural Statements							. 37
							. 37
User Routines							. 38
User Routines							. 38
Monitor User Routines							. 38
Front-end User Routines							. 38
What User Routines Can Do							. 38
Common User Routine Parameter Area .							. 39
Where User Routines Can Be Used							. 39
Parameters Used for Different Call Places							. 40
Predefined Symbols							. 41
Common Considerations for User Routines				•			. 41
Natural Programs					ij	_	. 41
Routines to Set Input Conditions				•			. 42
Routines for End-Of-Job Checking and Action	ıs .			•			. 42
Accessing Entire Operations from other Applica				•	•		. 43
Accessing Entire Operations from other Applicat							. 43
API - Application Programming Interface .							

<b>Submission of Jobs by Entire Operations</b>													. 44
Submission of Jobs by Entire Operations													. 44
Job Execution as a Dummy Job													. 46
Job Execution as a Dummy Job													. 46
Permanent Dummy Jobs													. 46
Temporary Dummy Jobs													. 46
Influence on the End-Of-Job Actions													. 47
Supervision of Running Jobs													. 47
Logging Facility													. 48
Logging Facility	•	•	•	•	•	•	•	•	•	•	•	•	. 48
Error Messages	•	•	•	•	•	•	•	•	•	•	•	•	. 49
Error Messages													. 49
Where Error Messages Are Written to			•	•	•		•	•	•	•	•	•	. 49
Language of the Error Messages .					•	•	•	•	•	•	•	•	. 49
Reporting Facility	•	•	•	•	•	•	•	•	•	•	•	•	. 51
Reporting Facility	•	•	•	•	•	•	•	•	•	•	•	•	. 51
	•	•	•	•	•	•	•	•	•	•	•	•	. 52
	•	•	•	•	•	•	•	•	•	•	•	•	. 52
				•	•	•	•	•	•	•	•	•	. 52
•		•	•	•	•	•	•	•	•	•	•	•	. 53
Cleanup of the Active Database		•	•	•	•	•	•	•	•	•	•	•	
$\mathcal{C}$	•	•	•	•	•	•	•	•	•	•	•	•	. 53
Hints on Entire Operations Performance		•	•	•	•	•	•	•	•	•	•	•	. 54
Hints on Entire Operations Performance		•	•	•	•	•	•	•	•	•	•	•	. 54
Job Control for Jobs under BS2000/OSD		•	•	•	•	•	•	•	•	•	•	•	. 55
Job Control for Jobs under BS2000/OSD	•	•	•	•	•	•	•	•	•	•	•	•	. 55
Naming Conventions for Work Files						•	•	•	•	•	•	•	. 55
User Exit for the Assignment of BS200	)()/O;	SD V	Vork	File	Nar	nes	•	•	•	•	•	•	. 55
Job Control for Jobs under UNIX .	•	•	•	•	•	•	•	•	•	•	•	•	. 56
Job Control for Jobs under UNIX .		•	•	•	•		•	•	•	•		•	. 56
Entire Operations Work Directory .		•	•	•	•		•	•	•	•		•	. 56
Job Control for Jobs under Windows NT		•	•	•	•		•	•	•	•		•	. 57
Job Control for Jobs under Windows NT		•	•	•	•		•	•	•	•		•	. 57
Windows NT Version Required .									•				. 57
T 1													. 57
Integration in Entire Operations .													. 57
<b>Executing Operating System Functions</b>													. 58
Windows NT File Systems													. 58
File Names													. 58
Example													. 58
Sysout Redirection									•				. 58
Entire Operations Work Directory .									•				. 58
Environment Variables									•				. 59
Job Control													. 59
Job Start and Job Control													. 59
End-of-Job Check													. 59
End-of-Job Actions													. 59
Software AG Editor													. 59
SAP R/3 Batch Support on UNIX and Wi													. 61
SAP R/3 Batch Support on UNIX and W1	ndov	vs N	T										. 61
SAP R/3 Batch Support on UNIX and Wi Overview													. 61

RFC Connections														61
R/3 RFC Session Handling.														61
Job Type R3														62
Script Language for SAP R/3														62
Scheduling														62
Scheduling														62
Online Logon to SAP R/3 .														62
Script Language for SAP R/3 Jobs														62
Advantages													į	62
Features:													•	63
R/3 Script Language: Syntax De	finition	1 .	Ī				Ī						į	63
R/3 Script Language: Syntax Des Script Language Examples .			•	•	•	•	•	•	•	•	•	•	•	65
Installation Notes	•	•	•	•	•	•	•	•	•	•	•	•	•	66
Logging on to Entire Operations .													•	67
Logging on to Entire Operations .													•	67
Entire Operations Logon Screen	•	•	•	•	•	•	•	•	•	•	•	•	•	67
Logging on to an Operating System	Serve	er - No	ode	•	•	•	•	•	•	•	•	•	•	69
Logon Process														69
Upper/Lower Case													•	69
Input Field Defaults		•	•	•	•	•	•	•	•	•	•	•	•	69
Input Field Defaults Nodes on Mainframes		•	•	•	•	•	•	•	•	•	•	•	•	69
Nodes on UNIX	· ·	•	•	•	•	•	•	•	•	•	•	•	•	71
Nodes on Windows NT .														71
SAP R/3 System														72
Entire Operations Main Menu.													•	73
Ontions on the Main Many		•	•	•	•	•	•	•	•	•	•	•	•	74
Options on the Main Menu . Selecting Options		•	•	•	•	•	•	•	•	•	•	•	•	75
Entire Operations Screens		•	•	•	•	•	•	•	•	•	•	•	•	75 75
Using PF Keys														76
Selection Windows													•	77
Confirmation Window when Dal	, latina I	toma	•	•	•	•	•	•	•	•	•	•	•	77
Confirmation Window when Del Priority of Command Processing	.eung 1	tems	•	•	•	•	•	•	•	•	•	•	•	78
														78
Date and Time Formats .									•	•	•	•	•	
Error Messages									•	•	•	•	•	79 70
Online Technical Information .								•	•	•	•	•	•	79
Online Help Facility								•	•	•	•	•	•	79
Screen Level													•	80
Field Level													•	82
Network Maintenance													•	84
Network Maintenance													•	84
How to Invoke the Network Mainte													•	84
Selecting Range of Networks to be													•	87
Adding a Job Network Definition													•	87
Modifying a Job Network Definition	n .	٠	-	•	•	•	•	•	•	•	•	•	•	90
Network Defaults: Operating Syste	m-Spe	citic I	<b>Entrie</b>	es	•	•	•	•	•	•	•	•	•	90
Network Defaults for BS2000/OSD	) .	•	•	•	•	•	•	•	•	•		•	•	91
Network Defaults for OS/390.			•	•	•	•	•	•	•	•		•	•	93
Network Defaults for UNIX and W													•	93
													٠	94
Applying Network Defaults to Jobs		•										•	•	95
Specifying Recipients for Network	Messa	CAS												97

Listing Active Jobs for a Network										99
Copying a Job Network Definition										99
Deleting a Job Network										100
Displaying Overview of Job Flow within a Network .										101
Authorizing Other Users to Access a Network										102
Checking for a Loop in a Job Network										104
Listing Jobs										105
Deactivating Active Jobs										105
Creating Online Documentation for a Network										106
Activating a Job Network Manually										106
Display Network Accounting Data										109
Symbol Prompting during Manual Activation										110
Symbol Prompting User Routine										111
Scheduling a Job Network	_	_								112
Scheduling a Job Network										112
General Scheduling Considerations										112
Using Calendars										112
Defining a Schedule for a Job Network										113
Defining Dates for a Network Schedule										115
How Schedule Modification Affects Planned Starts										118
Displaying Schedule for a Job Network										119
Producing Network Start Summary										121
Displaying Next Network Starts - Single Network .										122
Starting a Job Network Manually										124
Symbol Prompting										124
Modifying an Active Symbol Table										124
Displaying Next Network Starts - System-Wide										126
Modify the Start Time of a Planned Network Start										128
Displaying Execution History for a Network						ij	ij	Ī	Ī	128
Displaying Execution History for a Particular Day	·	Ī	Ī		Ī	ij	ij	Ī	Ī	129
Job Maintenance - Overview	•	•	•	•	•	•	•	•	•	131
Job Maintenance - Overview									Ī	131
Job Maintenance Overview									•	131
Job Maintenance Facility	•	•	•	•	•	•	•	•	•	132
Job Maintenance Facility	•	•	•	•	•	•	•	•	•	132
Column Headings: Job Maintenance									•	132
Line Commands: Job Maintenance										133
Adding a Job Definition										134
Field Descriptions: Master Job Definition	•	•	•	•	•	•	•	•	•	135
Inh Types	•	•	•	•	•	•	•	•	•	138
Job Types	•	•	•	•	•	•	•	•	•	140
Modifying a Job Definition	•	•	•	•	•	•	•	•	•	140
JCL Locations										141
Restrictions for Joh Types	•	•	•	•	•	•	•	•	•	141
Remote ICI Storage	•	•	•	•	•	•	•	•	•	141
Restrictions for Job Types	•	•	•	•	•	•	•	•	•	141
JCL Location PRC: BS2000/OSD DO Procedure .	•	•	•	•	•	•	•	•	•	141
JCL Frame for BS2000/OSD DO Procedure										141
Operating-System-Dependent Job Definitions										142
										142
BS2000/OSD Specials										143
CIVALLA SOLUTIONS DAZARONA MALLANCIALS				_				_	_	147

OS/390 Specials					144
DOS/VSE Specials					145
Field Descriptions: Special Definitions for DOS/VSE.					146
UNIX and Windows NT Specials					146
Defining a Sub-network					147
Fields: Sub-network Definition					148
Define a JCL for a Job					149
Fields: Master JCL Definition					149
Special PF Keys: Master JCL Definition					150
JCL Location					151
Restrictions for Job Types					151
Location on another Node					152
Replacing Symbols					152
JCL Location PRC: BS2000/OSD DO Procedure					152
JCL Frames for BS2000/OSD DO Procedures					152
BS2000/OSD Specials					153
UNIX and Windows NT Specials					154
Importing JCL to Natural Source					155
Field Descriptions: JCL Import from File to Natural Source	2				156
Job Dependencies					158
Special PF Keys: Job Dependencies					158
Line Commands: Job Dependencies					159
Displaying Job Dependencies					159
Connecting Jobs from the Same or Different Networks .					159
Field Descriptions: Job Connection					160
Disconnecting Jobs					161
Disconnection from a predecessor job					162
Disconnection from a successor job					162
Copying a Job Definition					162
Copying JCL of an Existing Job					162
Deleting a Job Definition					163
Editing JCL or Natural Programs					163
Creating Online Documentation for Jobs					164
Pregenerate Active JCL					165
Special PF Keys: Active JCL Pregeneration					166
No Re-loading after Editing					166
Scheduling a Job					166
Time Frames					167
Field Descriptions: Scheduling Parameters					167
Special PF Keys: Scheduling Parameters					168
Sending a Late Message to One or More Users					169
Job Accounting Data					169
Field Descriptions: Date / Run Number Selection					170
Column Headings: Job Accounting Data					171
Defining Schedule Dependency for a Job					171
Field Descriptions: Schedule Dependency Definition for Jo					172
Special PF Keys: Schedule Dependency Definition for Job					173
Turn of the Year					174
Deleting Entries					174
Activating a Single Job Manually					175
Field Descriptions: Ioh Activation					176

User-defined Log	 	. 170
Field Descriptions: User-defined Log Data	 	. 17
JCL Log	 	. 178
Input Condition Maintenance	 	. 179
Input Condition Maintenance	 	. 179
Column Headings: Input Condition Maintenance	 	. 179
Line Commands: Input Condition Maintenance	 	. 18
Special PF Keys: Input Condition Maintenance	 	. 18
Adding Master Input Condition		
Special PF Keys: Master Input Condition Addition / Modification .	 	. 182
Field Descriptions: Master Input Condition Addition / Modification .	 	. 182
Modifying Input Condition Definition	 	. 184
Deleting Input Condition Definition	 	. 184
Input Condition Depending on User Routine	 	. 185
Field Descriptions: Input Condition User Routine	 	. 186
Special PF Keys: Input Condition User Routine	 	. 180
Input Condition Depending on Multiple Suffixes	 	. 180
Field Descriptions: Input Condition Multiple Suffixes	 	. 187
Special PF Keys: Input Condition Multiple Suffixes	 	. 18
Input Condition Depending on File Existence	 	. 188
Field Descriptions: Input Condition depending on File	 	. 188
Special PF Keys: Input Condition depending on File		. 189
Input Condition Depending on Mailbox		. 190
Using Mailboxes with Input Conditions		
Defining the Input Condition		
Field Descriptions: Input Condition User Interaction		
Special PF Keys: Input Condition User Interaction		. 19
Input Condition Depending on User Switch - BS2000/OSD		. 192
Field Descriptions: Input Condition depending on User Switch		
Special PF Keys: Input Condition depending on User Switch		
Input Condition Depending on Symbol Value	 	. 194
Field Descriptions: Input Condition depending on Symbol Value .		
Special PF Keys: Input Condition depending on Symbol Value		
Input Condition Depending on Job Variable - BS2000/OSD	 	. 190
Field Descriptions: Input Condition depending on Job Variable Contents		. 190
Special PF Keys: Input Condition depending on Job Variable Contents	 	
Global Conditions		. 198
Input Condition References		. 198
Possible References for Conditions		. 198
Relative Values		. 199
Restrictions for Global Conditions		. 200
Defining Schedule Dependency for an Input Condition		. 200
Editing Input Condition User Routines		. 20
Displaying Jobs Linked to an Input Condition or Output Condition .		. 202
Displaying Currently Active Conditions	 	. 203
Defining Prerequisite Resources	 	. 205
Defining Prerequisite Resources	 	. 205
Column Headings: Prerequisite Resources		. 205
Modifying Resources	 	. 20

End-of-Job Checking and Actions - Overview						208
End-of-Job Checking and Actions - Overview						208
Kinds of End-of-Job Actions						209
End-of-Job Checks for Various Operating Systems						209
End-Of-Job Actions with Execution as a Temporary Dumm						210
End-Of-Job Actions with Execution as a Temporary Dummy	Job					210
Sysout Actions						210
End-of-Job Checking and Actions Facility						211
End-of-Job Checking and Actions Facility						211
Column Headings: End-of-Job Checking and Actions .						211
Line Commands: End-of-Job Checking and Actions						212
Adding Event Definition for OS/390 or VSE/ESA Job						214
Adding Event Definition for OS/390 or VSE/ESA Job						214
Field Descriptions: Add/Modify Event Definition						214
Modifying Event Definition for OS/390 or VSE/ESA Job .						217
Modifying Event Definition for OS/390 or VSE/ESA Job .						217
Example of an A-type Event						217
Example of a C-type Event						218
Example of an R-type Event						218
Example of an S-type Event						219
Adding Event Definition for BS2000/OSD Job						221
Adding Event Definition for BS2000/OSD Job						221
Field Descriptions: Add/Modify Event Definition						221
Modifying Event Definition for BS2000/OSD Job						224
Modifying Event Definition for BS2000/OSD Job						224
Example of a U-type Event						224
Example of a V-type Event						225
Field Descriptions: Event Definition - Job Variable Che	cking -	BS200	0/OSI	)		225
Adding or Modifying a Job Variable	_					226
Special PF Keys: Job Variable Modification						227
Example of a J-type Event						227
						229
Adding Event Definition for UNIX or Windows NT Job .						229
Modifying Event Definition for UNIX or Windows NT Job						232
Modifying Event Definition for UNIX or Windows NT Job.						232
Deleting an Event Definition						233
Deleting an Event Definition						233
End-Of-Job Checking under several Operating Systems .						234
End-Of-Job Checking under several Operating Systems .						234
OS/390 Defaults for Event Checking						234
Precedence of Event Checks						234
VSE/ESA Defaults for Event Checking						234
Date Formats in VSE/ESA Sysout						235
BS2000/OSD Defaults for Event Checking						235
UNIX and Windows NT Defaults for Event Checking .						235
Creating Online Documentation for Events						236
Creating Online Documentation for Events						236
Adding Output Condition Definitions						237
Adding Output Condition Definitions						237
Adding an Output Condition for an Event						237
Adding an Output Condition for a Job Event						237

Column Headings: Output Conditions												238
Field Descriptions: Output Condition A	dditio	on/Mo	dific	ation								239
<b>Modifying Output Condition Definitions</b> .												240
Modifying Output Condition Definitions .												240
Displaying Output Condition Use												241
Displaying Output Condition Use												241
Editing End-of-Job User Routines												242
Editing End-of-Job User Routines			·	•				•	-	-	-	242
Defining Activation of Jobs or Job Networks						•	•	•	•	•	•	244
Defining Activation of Jobs or Job Networks					•	•	•	•	•	•	•	244
Defining Recovery Action				•	•	•	•	•	•	•	•	246
Defining Recovery Action	•		•	•	•	•	•	•	•	•	•	246
Field Descriptions: Recovery Definition					•	•	•	•	•	•	•	246
Special PF Keys: Recovery Definition											•	247
•				•	•	•	•	•	•	•	•	
System Symbols for Recovery Actions .				•	•	•	•	•	•	•	•	248
Sysout Actions			•	•	•	•	•	•	•	•	•	249
Sysout Actions					•	•	•	٠	•	•	•	249
Field Descriptions: Sysout Actions .								•	•	•	•	249
Passing Files to Entire Output Management									•	•	•	251
Passing Files to Entire Output Management							•	•	•	•	•	251
Adding a File Definition for Entire Outpu												251
Spool File												252
Output File - Sequential File												253
Carriage Control Type												254
Handing Over Sysout and Files to Entire O	Outpu	t Man	agen	nent								255
Repetition if File is Missing or Open												255
Copying Files Before Handing Over to												255
File Copy On Another ENTIRE System	n Serv	er No	de .									255
Connection with a Defined Recovery A												255
Sysout Copy from UNIX / Windows NT t												256
Fields: Sysout Copy from UNIX / Window												256
Special PF Keys: Sysout Copy from UNIX												257
Message Switching	-, ,,		5111				-	•	•	•	•	258
Message Switching	•		•	•	•		•	•	•	•	•	258
Field Descriptions: Message and Messa			-	-	-	•	•	•	•	•	•	258
E-Mail on UNIX Systems	_	•				•	•	•	•	•	•	259
Defining End-of-Job Action User Routine						•	•	•	•	•	•	260
											•	260
Field Descriptions: Execute EOJ Action U											•	260
•				•	•	•	•	•	•	•	•	
Special PF Keys: Execute EOJ Action Use				•	•	•	•	•	•	•	•	260
Defining Other Actions					•	•	٠	•	•	•	•	262
Defining Other Actions					•	•	•	٠	•	•	•	262
Special PF Keys: Other Actions	•		•	•	•	•	•	•	•	•	•	262
Active Job Networks - Overview	•		•	•	•	•	•	•	•	•	•	263
Active Job Networks - Overview				•					•			263
Active Data Base				•								264
Active Data Base												264
Maintaining Active Job Networks												265
Maintaining Active Job Networks												265
Selecting Range of Networks to be Listed				•								265
Column Headings: Active Job Network												265

Line Commands: Active Job Networks												266
PF Keys: Active Job Networks												266
Deactivating an Active Job Network .												267
Deactivate a Network before Submission	n of Fi	rst Jo	b .									267
Deactivate all Networks												268
Stop a Running Network												268
Displaying Operating System Information	on Ac	tive T	asks									268
Listing Active Tasks according to Node												269
Listing Active Tasks according to Type												269
Column Headings: All Active Tasks.												269
Listing Next Scheduled and Manual Netwo												270
Displaying Execution History for a Networ												271
Listing All Active Jobs												271
Restrictions												272
Listing All Active Jobs according to Ow												272
Listing All Active Jobs according to Sub												272
Listing All Active Jobs according to State												272
Column Headings: All Active Jobs .		_										272
Line Commands: All Active Jobs .												273
PF Keys: All Active Jobs												273
Maintaining Active Jobs												274
Maintaining Active Jobs	•	•	•	•	•	•	•	•	•	•	•	274
Column Headings: Active Jobs	•	•	•	•	•	•	•	•	•	•	•	274
Line Commands: Active Jobs												275
Special PF Keys: Active Jobs												276
Listing Active Jobs according to Status												277
Selecting Active Jobs According to Run No	 umher	•	•	•	•	•	•	•	•	•	•	278
Adding a Job to the Active Network .	annoci	•	•	•	•	•	•	•	•	•	•	278
Field Descriptions: Active Job Definition												278
PF Keys: Active Job Definition												279
Modifying a Job in an Active Network .												280
Special Type D - Execution as a Dummy		•	•	•	•	•	•	•	•	•	•	281
Special Type D - Execution as a Dummy Define Job Control for the Active Job .		•	•	•	•	•	•	•	•	•	•	281
Exchanging Active JCL												281
Special Type 'D' - Dummy											•	281
Deactivating a Job in an Active Network							•	•	•	•	•	282
Cancelling a Planned Job Activation .		•	•	•	•	•	•	•	•	•	•	283
Maintaining Input Conditions of Active Jol									•	•	•	284
Display Jobs Concatenated with the Active											•	284
Modifying End-Of-Job Checking and Action	•										•	284
											•	285
Modifying Scheduling Parameters for Active Jobs.							•	•	•	•	•	285
Cancelling, Holding and Releasing Active							•	•	•	•	•	285
							•	•	•	•	•	
Cancelling Active Jobs											•	286
Holding Active Jobs						•	•	•	•	•	•	286
Releasing Active Jobs						•	•	•	•	•	•	287
						•	•	•	•	•	•	287
OS/390 Sysout Special Commands .											•	289
VSE/ESA Sysout Special Commands												290
Resubmitting an Active Job										•	•	291 291
Resubmitting Sub-networks										_	_	291

No Re-loading after Editing							. 291
Regeneration or Generation of Active JCL							. 291
Resubmitting a Job after Re-generation of JCL	•						. 292
Symbol Prompting on Regeneration of JCL							. 292
Re-generation of JCL for Sub-networks							. 292
Displaying Online Documentation for Active Jobs .							. 292
Displaying Prerequisites for an Active Job							. 293
Line Commands: Display Prerequisites for an Active							. 294
Display Use of an Input Condition							. 294
Display Use of Resources			 •	•	•	•	. 295
Editing Active JCL		•	 •	•	•	•	. 295
Maintaining Active Conditions			ij	i	ij		. 297
Maintaining Active Conditions			 •	•	•	•	. 297
Column Headings: Active Conditions							. 297
Adding Active Conditions		•	 •	•	•	•	. 298
Modifying Active Conditions	•	•	 •	•	•	•	. 299
Deleting Active Conditions	•	•	 •	•	•	•	. 300
Display Use of Active Conditions		•	 •	•	•	•	. 300
Calendar Maintenance						•	. 301
Calendar Maintenance		•	 •	•	•	•	. 301
Calendar Maintenance Overview	•	•	 •	•	•	•	. 301
Calendar Maintenance Facility	•	•	 •	•	•	•	. 301
Adding a Calendar					•	•	. 302
Defining Workdays and Holidays	•	•	 •	•	•	•	. 305
Copying a Calendar	•	•	 •	•	•	•	. 307
Modifying a Calendar	•	•	 •	•	•	•	. 308
Deleting a Calendar				•	•	•	
Displaying a Calendar						•	. 309
Listing Networks Using a Calendar by Way of Their S			 •	•	•	•	. 309
Log Information	•	•	 •	•	•	•	. 311
Log Information	•	•	 •	•	•	•	. 311
Symbols	•	•	 •	•	•	•	. 318
Symbols	•	•	 •	•	•	•	. 318
Symbol Tables	•	•	 •	•	٠	•	. 318
Global Symbols			•	•	٠	•	. 318
Predefined Symbols Availability			•	•	•	•	. 318
Symbol Replacement							. 319
Master Symbol Table							. 319
Method 1:						•	. 319
Method 2:	•	•	 •	•	•	•	. 319
Active Symbol Table			•	•	•	•	. 319
Master Symbol Table Maintenance Function							. 320
Master Symbol Table Maintenance Function						•	. 320
Column Headings: Master Symbol Tables - window					•	•	. 320
Line Commands: Master Symbol Tables - window							. 321
PF Keys: Master Symbol Tables - window							. 321
Adding a Master Symbol Table							. 321
PF Keys: Master Symbol Addition							. 322
Field Descriptions: Master Symbol Addition							. 322
Example							. 324
Multiple Symbol Values							. 325

Field Descriptions: Multiple Symbol Values								325
Symbol Plausibility Check User Routine								326
Field Descriptions: Definition of Symbol Check User Routine								327
Using Adabas and Entire System Server								327
Special PF Keys: Definition of Symbol Check User Routine								327
Displaying and Modifying a Master Symbol Table								327
Column Headings: Master Symbol Table - screen								328
Special PF Keys: Master Symbol Table - screen								329
Adding a Symbol to a Symbol Table								329
Copying a Symbol within a Symbol Table								330
Modifying a Symbol in a Symbol Table								330
Numeric Value Check								330
Deleting a Symbol from a Symbol Table								331
Recursive Symbol Replacement								332
Symbol Replacement in Job Control - JCL								332
Copying a Master Symbol Table								333
Fields: Symbol Table Master Definition Copy - window .							•	334
Columns: Symbol Table Master Definition Copy - window							•	335
Deleting a Master Symbol Table								335
Listing Jobs Using a Symbol Table								336
Column Headings: Symbol Table Usage								336
Symbol Prompting			•	•	•	•	•	338
Symbol Prompting	•	•	•	•	•	•	•	338
Standard Symbol Prompting								338
Line Commands: Symbol Prompting								338
								339
PF Keys: Symbol Prompting	•	•	•	•	•	•	•	339
Consolling Symbol Drompting	•	•	•	•	•	•	•	339
Cancelling Symbol Prompting								339
Repeating Symbol Prompting								
Entering Long Symbol Values and Modifying Active Symbols								340
Field Descriptions: Active Symbol Modification								340
PF Keys: Active Symbol Modification	•	•	•	•	•	•	•	341
Accepting All Symbols and Printing Symbols after Prompting	•	•	•	•	•	•	•	341
User-defined Symbol Prompting							•	342
Field Descriptions: Symbol Prompting User Routine							•	343
PF Keys: Symbol Prompting User Routine	•	•	•	•	•	•	•	343
Symbol Modification without Prompting	•	•	•	•	•	•	•	343
Symbol Replacement							•	344
Escape Character and End of Symbol							•	344
Algorithm							•	345
Fixed Positions within the Line		•	•	•	•	•	•	345
Symbol Replacement with Multiple Symbol Values		•	•	•	•	•	•	346
Predefined Symbols							•	346
Reserved Symbols with Special Meaning							•	348
Symbol Replacement in Subnetworks		•	•	•	•	•	•	349
Symbol Functions		•	•			•		354
Symbol Functions		•	•			•		354
Integrated Symbol Function !D, ?D - Date								354
Syntax								354
Examples								354
Function			_					354

Return Format														355
Parameters														355
Referring Objects														356
Symbol Function !E, ?E - Date, Da														356
Syntax														356
Examples														357
Function		•	•	•	•	•	•	•	•	•	•	•	•	357
Return Format								•	•	•	•	•	•	357
Parameters													•	357
Edit Masks for Date Functions													•	357
Symbol Function !MV - Symbol Fu												•	•	358
Syntax				_	•	•						•	•	358
Examples													•	358
Function													•	359
Return Format									•	•	•	•	•	359
Parameters		•	•	•	•	•	•	•	•	•	•	•	•	359
		•	•	•	•	•	•	•	•	•	•	•	•	359
Errors													•	
Reference Objects													•	359
Symbol Function !W, ?W - Date C										•	•	•	•	359
Syntax								•	•	•	٠	•	•	359
Parameters								•	•	•	•	•	•	359
Function													•	361
Return Format													•	361
Symbol Function W: Output Dat									•	•			•	361
User Routines for Symbol Function	ns .		•		•			•	•	•			•	363
Example: §!RANDOM<20,1>			•		•		•	•	•	•	•	•	•	363
Example:										•			•	363
Example:														364
Mailboxes								•						366
			•											366
Displaying Mailbox Messages														366
Access to Messages														367
Message Types														368
Origin of Mailbox Messages .			•											370
Group Mailbox														370
SYSDBA Mailbox														370
User Mailbox														370
Clearing Mailboxes														370
Reporting														371
Reporting														371
Reporting Overview														371
Job Logs														372
Network and Job Accounting Data														374
Network Description														377
Network Job Flow Display .														380
Jobs Schedule														381
													•	384
API Routines													•	387
API Routines													•	387
Application Programming Interface													•	387
Using the API Routines													•	388
Commander of the contract of t			•	•		•	•	•			•			200

Invoking the API Routines				•		•				. 38
Inquire Network and Job Status, Symbol Table	e .									. 389
Inquire Status of Whole Active Network.										. 39
Inquire Status of all Jobs of an Active Netw	ork In	divid	ıally							. 39
Inquire Symbol Table Used										. 39
Accessing Calendars and Schedules										. 39
Example for Using NOPUCS1N										. 39
Accessing Entire Operations Conditions .										. 39
Description of the Function Codes										. 39
Accessing Entire Operations Resources .										. 39.
Description of the Function Codes										. 39
Accessing Entire Operations Symbols										. 39
Description of the Function Codes										. 39
Sequential Reading in a Symbol Table .										. 39
Activation of Job Networks or Jobs										. 39
Activation with Symbol Modification .										. 40
Writing Messages to the Entire Operations Lo										. 40
Expanding Message Texts										. 40
Importing Existing Jobs into the Active Queue										
Display of Long Texts for Symbol Prompting										. 40
Generating Sysout File Names for BS2000/OS										. 40
Rules for Exit Coding										. 40.
Use with Work File Deletion										. 40
Checking Use of BS2000 User IDs										. 40
Job Schedule Inquiry and Modification .										. 40
Sub-networks: Inquire Calling Job or Called N										. 40
Starting and Stopping the Monitor Activity Lo										. 41
Entire Operations Version Information										. 41
Example of Use of API-Routines										
Special Monitor Features and Batch Jobs .										
Special Monitor Features and Batch Jobs										. 41
Monitor Start Network					Ī	į				. 41
Execution				·	•	•	•	•	•	. 41
Use							•		•	. 41
Cleanup in Batch Mode									•	. 41
Parameter for CLEAN										. 41
Cleanup of Mailbox Messages to SYSDBA	•	•	•	•	•	•	•	•	•	. 41
Parameter for MX-DEL1P										. 41
Special API Routines for Entire Operations .										. 41
Special API Routines for Entire Operations .										. 41
Introduction										. 41
Required LFILE Assignments	•		•	•	•	•	•	•	•	. 41
Required LFILE Assignments Log Selection File - Format 1	•		•	•	•	•	•	•	•	. 41
Extraction of Log Data to the Log Selection F	ile		•	•	•	•	•	•	•	. 41
Deletion of Old Data in the Log Selection File										. 41
Output of Log Data to a File										. 41
Printing Accounting Information from the Star										. 41
Monitor or Task Wait Time Modification .			_		_					. 41
Monitor Shutdown										
Monitor Start										
BS2000/OSD Jobs: Update of Submit User ID										

# **User's Guide - Overview**

This documentation covers the following topics:

Introduction Provides a general overview of the Entire Operations system. System Overview Gives a brief description of the entities, which must be defined to the system, before full control of batch processing can be passed to Entire Operations, and how Entire Operations uses them. Introduces you to the Entire Operations components and facilities you can use to control and monitor the system. Logging on to Entire Tells you how to start an Entire Operations session, introduces you to the Entire Operations Operations Main Menu, explains the layout of the system screens and the functions they provide, and describes the online help facility. Network Explains how to define and maintain job networks. Maintenance Scheduling a Job Describes how to schedule a job network. Network Job Maintenance Explains the Job Maintenance facility and how to define different job types and job dependencies, create and use JCL, create online documentation for jobs, schedule a job, define input conditions and specify resources. End-of-Job Describes how to instruct Entire Operations what actions to trigger after a job Checking and has terminated. Actions Active Job Networks Provides information on the maintenance functions you can perform on active jobs and networks using the Active Job Networks option on the Main Menu. Calendar Explains the calendar maintenance facility that can be used to create Maintenance user-defined calendars which are the basis of schedule tables for jobs and job networks. Log Information Describes how to display all logged information. Symbols Provides information on symbol tables, the master symbol table maintenance function, symbol prompting and symbol functions. Mailboxes Describes how to display mailbox messages. Reporting Explains the Entire Operations Reporting facility, which makes a number of different reports available: information at the job and event level, information on job network definitions and schedules and overviews of schedules and planned activations. API Routines Provides information on the Application Programming Interface (API) which resides in the Entire Operations library and which is a set of routines that you can invoke from any other Natural application in order to access the internal

Describes how to define a job network to be executed after each monitor start

and before the activation of any other job and the cleanup in batch mode.

data of Entire Operations.

Special Monitor

Jobs

Features and Batch

1

Special API
Routines for Entire
Operations

Describes special API routines for Entire Operations which reside in the Entire Operations Natural library (SYSEOR) and which may be used in batch and online.

For details on how to navigate within the documentation, see Using the Documentation.

# Introduction

This section covers the following topics:

- What Is Entire Operations?
- Contents of This Documentation

# What Is Entire Operations?

Entire Operations is Software AG's online control and scheduling system for the automatic preparation, handling, monitoring and logging of batch processing in the computer center.

This documentation contains all information relevant to the user of the Entire Operations system.

Before reading this document, you should be familiar with the **Entire Operations Concepts and Facilities Documentation**, which defines and briefly describes the system entities and facilities referred to in this documentation. For the sake of coherence and clarity, some information contained in the **Concepts and Facilities Documentation** is repeated in Section System Overview in this documentation. You should read this section before starting work with Entire Operations.

A general overview of the product is also available in the Software AG brochure **Entire Systems Management** -**Easier End-user Access to Data Centers**.

#### **Operating System Designations**

BS2000, MVS and VSE are short designations for the corresponding operating systems, which can be found on the individual screens in this documentation and in the online help. But throughout the remaining text, their long names are consistently used, i.e., BS2000/OSD, OS/390 and VSE/ESA.

<b>Operating Systems</b>					
Short Names	Long Names				
BS2000	BS2000/OSD				
MVS	OS/390				
VSE	VSE/ESA				

### **Contents of This Documentation**

#### **System Overview**

Provides a general overview of the Entire Operations system. This section

- defines product-specific terminology;
- provides an introduction to Entire Operations facilities;
- describes the entities you can define to the system and how Entire Operations uses them.

#### **Logging on to Entire Operations**

Provides general information on the Entire Operations online system. This section

- tells you how to log on to Entire Operations;
- describes the layout of system screens and the functions they provide;
- explains the online help facility;
- introduces you to the Entire Operations Main Menu.

#### **Sections Network Maintenance to Reporting**

Provide a detailed account of Entire Operations functions as entered from the Main Menu and includes examples.

#### Note:

The System Administration Services option on the Main Menu is described in Section System Administration Services of the Entire Operations Administration Documentation. It explains how to define the entities and use facilities described in this documentation.

#### **Section API Routines**

Describes the Application Programming Interface. This is a set of routines that can be invoked from any other Natural application to access Entire Operations' internal data.

#### **Section Direct Commands**

Describes the Entire Operations direct commands, including full command syntax.

#### **Section Special Monitor Features and Batch Jobs**

Describes special monitor features.

#### **Section Messages and Codes**

Contains a full list of Entire Operations messages and codes, with explanations of the message texts and hints as to remedial action where appropriate.

#### **Section Messages in Active Jobs Display**

Explains all possible system messages that can appear in the Active Jobs display.

#### **Section Special API Routines for Entire Operations**

Explains some API routines that can access Entire Operations data from other Natural applications.

# **System Overview**

Before full control of batch processing can be passed to Entire Operations, certain entities must be defined to the system. This section gives a brief description of these entities and how Entire Operations uses them.

This section also introduces you to the Entire Operations components and facilities you can use to control and monitor the system.

List of Entire Operations Entities

User ID	Owner	Job Network	Job
Sub-networks	Logical Conditions	Logical Prerequisites Check	Event
End of Job Checking and Actions	Resources	Mailboxes	Operating System Server Nodes
Master Data Base and Active Data Base	Monitor - Server	Monitor Start Network	Activation
Run Number	Schedules	Calendars	Symbol Tables
Job Control Language	Dynamic JCL Generation	User Routines	Accessing Entire Operations from other Applications
Submission of Jobs by			
Entire Operations	Job Execution as a Dummy Job	Logging Facility	Error Messages
Entire Operations Reporting Facility		Logging Facility  Cleanup of the Active  Database	Error Messages  Hints on Entire Operations Performance

# **User ID**

In Entire Operations, a user ID can be used to enter the system. Entire Operations user IDs should, but need not be defined to the host TP monitor.

Several users can log on to Entire Operations with the same user ID and password at the same time. For reasons of data security and in order to trace data modifications, however, each user usually has a personal user ID and password.

User IDs are relevant to the following:

#### Security

Each user ID is associated with an individual user profile containing authorizations. A profile can be modified by an authorized user (e.g. the system administrator). See the subsection User Maintenance in the Section System Administrator Services of the Entire Operations Administration Documentation);

#### • Message switching

If a user ID is also defined to the host TP monitor, Entire Operations can send a message to the terminal at which the user ID is logged on (does not apply to BS2000/OSD);

#### Mailboxes

A user ID can be associated with up to ten mailboxes through which the user is notified of any pending logical conditions linked to those mailboxes (see the subsection Mailboxes in this section);

#### Logging

Entire Operations logs all activities and events occurring within the system, including user activities.

A user ID always has a link to at least one owner (see following subsection).

# **Owner**

Entire Operations provides ease of use and enhanced security through the concept of owners. This involves dividing job networks into groups by assigning them to an owner name. The system administrator assigns an owner name to a user ID in the User Maintenance facility (see the subsection User Maintenance in the Section System Administrator Services of the Entire Operations Administration Documentation). This owner name is automatically passed to the job network defined by the user.

An owner can thus represent a department or project, or a group of related job networks. Users belonging to a specific owner can perform functions only on those job networks associated with the same owner.

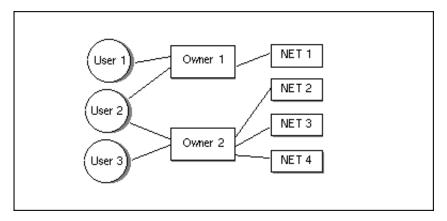
#### Note:

In special cases, a user can be authorized to access networks belonging to other owners. The owner SYSDBA is authorized to access the networks of all owners.

Any number of job networks can be associated with any one owner. A job network name is unique within the System only in combination with its owner name.

Access to most other Entire Operations entities is also owner-dependent. The owner name appears in the top line of most system screens and windows.

The figure below illustrates the links between users, owners and job networks:



# Job Network

A job network is a group of jobs that stand in defined relation to each other. This relation is composed of dependencies, which are expressed as logical conditions. In the simplest case, two jobs in a job network can be linked by the condition: If Job 1 finishes OK, start Job 2 (see the subsection Logical Conditions in this section).

A job network is uniquely defined by its owner and network name. Each network is given a start and deadline time which determine when the network is to be activated. If your installation includes multi-CPU support, you can also specify a default node number for the jobs in the network. This node ID can be overridden at the job level (see the subsection Operating System Server Nodes in this section).

A user can only access a defined job network if his user ID is associated with the same owner as the network, unless he has special authorization to access other networks.

A job network or a single job are the units of work that can be activated by Entire Operations. When a job network is activated, it is automatically given a run number that uniquely identifies this network activation. This feature allows several copies of the same job network to run simultaneously.

A job network can be a sub-network of another job network.

# Job

In Entire Operations, the term **job** carries a much wider meaning than for the operating system. In the Job Maintenance facility of Entire Operations, the following types of job can be defined:

Job Type	Explanation
CYC	A cyclic job (used for internal checking)
DUM	A dummy job (used to regulate job flow)
JOB	A standard operating system job
MAC	A job which uses Dynamic JCL Generation (defined using the Natural MACRO facility)
NAT	A Natural subprogram
NET	A sub-network (see the subsection Sub-networks)
R3	A job in the SAP R/3 runtime system.
SRV	A Windows NT service.
STC	A started task (OS/390 only)

A job can also consist of a **manual action** executed by the user. This action can be integrated into the job network by defining non-automatic prerequisites for it.

All jobs are members of job networks and can be linked by logical conditions. Some differences arise in end-of-job checking, depending on job type and operating system (see Section End-Of-Job Checking and Actions). However, you can always define Job OK or Job not OK as a condition for subsequent system action.

Only job types JOB, MAC, SRV and STC result in operating system jobs when submitted. For OS/390 and VSE/ESA: An operating system job can consist of several steps. In these cases, Entire Operations can check the result of each job step as part of end-of-job analysis and triggers system action accordingly.

A job is uniquely identified within a job network by its job name. The job name can, but need not be the same as the JOB or LOGON statement name (job name by which the operating system identifies the job). Before job submission, jobs can therefore only be identified by the name defined to Entire Operations. A job can only be accessed through Entire Operations by its Entire Operations name.

When defining a job, you must also specify:

- JCL location (depending on job type);
- node ID (if different from the node ID specified for the job network);
- job starting time (optional, otherwise network default used);
- end-of-job action specifications (see Section Job Maintenance for further details).

#### Note:

(OS/390 only) We recommend that the JCL of one Entire Operations job contain only one job card. Entire Operations retains only the first assigned job number of a submitted job.

# **Sub-networks**

The job of NET type enables you to define a sub-network within a main network. This allows you to build nested networks. The sub-network must already exist when the definition is created. The same sub-network can be defined in different jobs of the main network. On activation, each active sub-network is assigned a unique run number. Sub-networks can in turn be invoked within sub-networks, however a sub-network cannot invoke itself, because this could cause an infinite recursion.

#### Time of Activation of a Sub-Network

Sub-networks can be activated at two different times:

- at the time of the activation of the calling network
   The sub-network is activated together with the calling network (i.e., with the job type NET).
   It will be available from this point in time with run number and active JCL.
   This is the default.
- at the start time (submission) of the calling job of the type NET
   The sub-network is only activated if the calling job of the type NET is really started.
   This can prevent a sub-network from even being activated if the calling job is not executed at all later on. Moreover, the effort for job activations and loading the JCL is thus compensated for, and the waiting-time for prerequisites within the sub-network will be shorter.

   Note, however, that the active sub-network including active JCLs will only exist from a later time onwards.

The **sub-network activation mode** can be defined as follows:

- as a global default value (see Section Entire Operations Administration Documentation).
- in the definition of the calling job of the type NET (see Defining a Sub-network).

### Link to the Main Network

An input condition NET-BEGIN and an output condition NET-END must be defined in the sub-network.

Condition	Description
NET-BEGIN	This is an input condition of the first job of the sub-network.
NET-END	This is an output condition of the last job of the sub-network.
NET-END-NOTOK	If this condition is set by the sub-network, then the job of NET type is treated as <b>ended not ok</b> . This condition must be set in addition to NET-END.

### Run

A sub-network is activated together with the main network. The sub-network is assigned its own run numbers. Reserved symbols pass information to the jobs of the sub-network about which job invoked the sub-network. These symbols are:

Symbol	Description
P-C-OWNER	Owner of the invoking network.
P-C-NETWORK	The invoking network.
P-C-JOB	Job of the invoking network.
P-C-RUN	Run number of the invoking network.
P-C-SUFFIX	Suffix value of the job which invoked the sub-network where the symbol is used.
P-C-SYMBOL-TABLE	Symbol table of the invoking network.

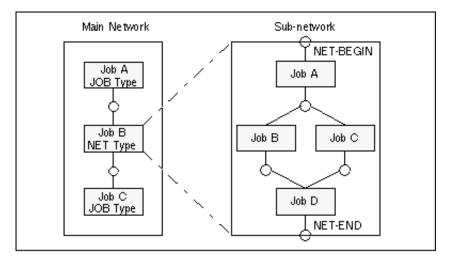
For a detailed description of the symbols, see the section Symbols.

If the sub-network has a standard symbol table, these values are entered as symbols in the active copy of this table.

This enables you to trace, even through several steps, from where the sub-network was invoked.

If the job of NET type can be activated (satisfies all input conditions), the condition NET-BEGIN of the sub-network is set and the sub-network starts to work: the NET-type job is then **Executing**. It remains in this status until the sub-network has set the condition NET-END. Only at this point are the end-of-job checking and actions performed which are defined in the invoking network.

If an execution error occurs in the sub-network, the execution of the invoking network is also blocked. If the sub-network sets the condition NET-END before its actual termination (or at its very start), the invoking network continues to run and a parallel asynchronous execution of the networks is possible. However, the user him/herself then becomes responsible for later synchronizing the sub-network with the invoking network.



# **Logical Conditions**

Logical conditions are variables within Entire Operations and describe job dependencies. Condition names must be unique within a job network.

An **active condition** reflects the current value of the condition for a given job network activation. It can have the value TRUE (the condition exists) or FALSE (the condition does not exist). The run number assigned to the job network at activation is automatically passed to the conditions defined for the jobs in the network. An active condition is uniquely identified by owner, network, run number and condition name.

In Entire Operations, logical conditions are used in two roles:

- as **input** conditions;
- as **output** conditions.

These are described in more detail below.

Logical conditions can be **global**. You can have only one global condition per name and system. See also the section Job Maintenance.

# **Input Conditions**

Input conditions are prerequisites for job submission. You can define up to 20 input conditions for a job. If you need more, **dummy** jobs can be inserted to 'collect' an unlimited number of input conditions. Entire Operations does not submit a job until all input conditions and other prerequisites are set (fulfilled). An input condition can be set by the occurrence of an event detected by Entire Operations or manually by the user from the Active Conditions screen in the Job Maintenance facility. It can also be set by a reply to a mailbox request.

If no input condition is defined for a job, Entire Operations assumes a virtual TRUE input condition. This means that this job can be submitted immediately at the (earliest) starting time defined for it, unless the job has other prerequisites such as resources.

Jobs are linked by defining the output conditions of one job as the input conditions of the subsequent job. For more information, see the subsection Input Condition Maintenance in Section Job Maintenance. A quick way to link two jobs is to use the Connect function, in which Entire Operations provides a default condition as an output condition for one job and as input condition for another.

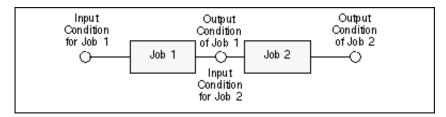
Input conditions can refer not only to the current run of a job network, but also to given time frames in the past or to previous runs.

You can also use an input condition to turn a job into a dummy job when it occurs. For further information on this topic, see Input Conditions and Job Execution as a Dummy Job.

## **Output Conditions**

Output conditions can be set or reset during end-of-job checking of Entire Operations. For each job or job step (operating system job), you can specify any number of possible events. Each event can be associated with up to 20 output conditions. When any of these events occur, Entire Operations automatically sets the associated output conditions and starts those jobs which have these conditions as input conditions (see also the subsection End-Of-Job Checking and Actions in this section).

The figure below illustrates a simple example of two jobs linked by logical conditions:



To link the two jobs: an Output Condition of Job 1 is defined as an Input Condition for Job 2.

# **Logical Prerequisites Check**

Entire Operations uses several procedures to reduce the effort involved for the logical prerequisites check. These procedures are transparent to the user. Nevertheless, they are to be explained in the following.

#### **Passive Wait**

Active jobs waiting for one or several input conditions, resources or for the availability of an operating system server (node) are placed into a particular queue, which removes them temporarily from the active check carried out by the monitor.

Active jobs are woken up from the passive wait:

- during setup or deletion of active prerequisites at any location;
- during setup or deletion of resources at any location;
- after modification or deletion of definitions for input conditions and resources in active jobs;
- during monitor start;
- during change of the day;
- by explicit request in System Services Menu / Special Functions.

After a wake up, an active check of the prerequisites, resources and operating system server is carried out again. If the prerequisites required for job start are not met, then another passive wait can result out of this.

#### **Exceptions from Passive Wait**

Please note that **no passive wait** can be carried out in the following cases:

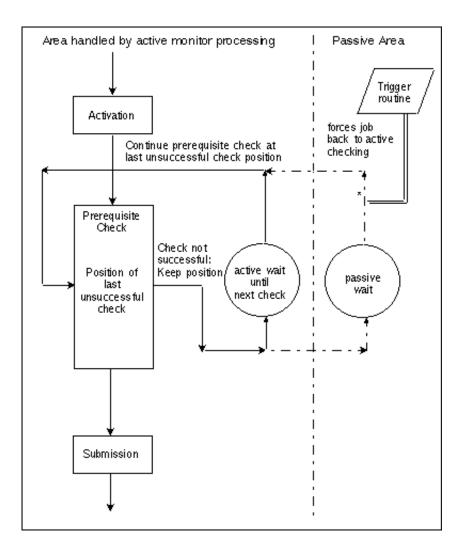
- waiting for an input condition which depends upon the existence of a file;
- waiting for an input condition which depends upon the result of a user routine.

In these cases, Entire Operations **cannot** acknowledge on its own when such a job is to be placed again into the active wait. Therefore, in such a case, an active job is not placed into the passive wait.

Nevertheless, at least for part of the wait, a passive wait can also be carried out for these jobs, if, in parallel to the above mentioned cases, they are waiting for a **normal** prerequisite, which is set up as shortly as possible before job submission.

In other words: it is recommended to replace a wait for prerequisites with special dependencies by a wait for 'normal' prerequisites.

The following diagram shows the course during passive wait for prerequisites and resources.

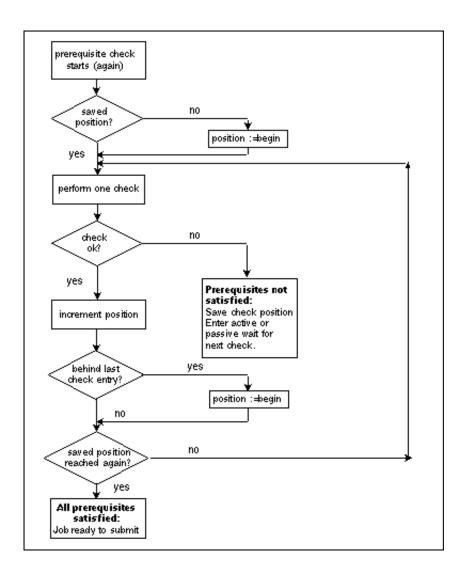


# **Prerequisites Check according to the Round Robin Procedure**

If prerequisites and resources of an active job are actively checked, then the order of the job checks will be optimized dynamically.

For a follow-up check, the last unsuccessful check will be the starting point. This prevents successful checks from being redundantly repeated several times. It is guaranteed, however, that immediately before the job start release **all** input conditions and resources have been checked **together at one point in time**.

The following diagram shows the course of the Round-Robin-Procedure for the check of prerequisites and resources.



# **Events**

In the terminology of Entire Operations, an event is the occurrence of a defined situation which is recognized during end-of-job analysis. Entire Operations automatically triggers system action, depending on the occurrence of events during job processing (see Section End-of-Job Checking and Actions). Any number of events can be defined for a job.

Some examples of possible defined events are:

- Exit code of a UNIX job equals 2;
- STEP2 of JOB1 ends with a condition code greater than 8;
- No job step ends with a condition code greater than 0;
- A defined message appears in the job sysout;
- A data base or file contains or does not contain certain expected data;
- The result of a user routine (expressed by its return code).
- A job variable contains certain expected data (BS2000/OSD).

# **End-of-Job Checking and Actions**

End-of-job actions refer to all actions performed after termination of a job. These actions can be performed automatically by Entire Operations or manually by the user.

#### End-of-job checking and actions consists of two steps:

- Analysis of job results (determination of end-of-job status);
- Triggering of appropriate system actions.

Entire Operations recognizes end-of-job status by the occurrence of events predefined by the user. Such an event can be, for example, any of the events described in the previous subsection.

If you do not specify any event, Entire Operations provides a default event expressed as Job OK or Job not OK, depending on whether a received condition code is greater or less than a default condition code, or, for BS2000/OSD, whether certain system messages are received.

For each of the user-specified or default events, you can define how Entire Operations is to act. Such an end-of-job action can consist of any of the following:

- Set output conditions to continue with job flow;
- Send message to user or console with information about any abnormal event or pending condition;
- Print or cancel job sysout data;
- Pass output files or sysout to Entire Output Management;
- Execute user routine;
- Activate other job networks;
- Perform recovery;
- Set job variable (BS2000/OSD only).

See Section End-of-Job Checking and Actions for more information.

### For Users of BS2000/OSD

Entire Operations can only check job sysout if it is assigned to a file. JCL of jobs that are to run under Entire Operations' control must therefore **not** contain sysout assignments to '\*dummy', 'primary' or to a temporary file, otherwise no end-of-job-checking is possible.

# **Resources**

Resources are system-wide prerequisites for job submission. Entire Operations does not submit a job until the amount of resource defined is available. You can thus use resources to further control the job flow when all input conditions for jobs that can run parallel are set. You do this by defining the priority with which resources are allocated to a job.

#### Resources can be

- quantitative or absolute;
- reusable or un-reusable.

Some examples of resources are listed below:

Resource	Туре
Print forms	Quantitative, un-reusable
Main storage	Quantitative, reusable
Line to a remote machine	Absolute
Availability of a device	Absolute

Resources can reflect real system resources or they can be virtual. Entire Operations monitors resources as defined in the Network and Job Maintenance facility. See the subsection Defining Prerequisite Resources in Section Job Maintenance for more details.

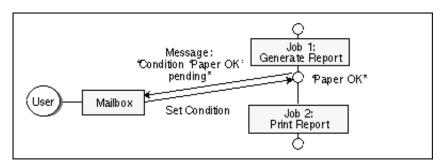
# **Mailboxes**

Mailboxes are used for message switching to Entire Operations users. If a message requires a reply, it can be prompted in the mailbox window.

Any input condition can be assigned to a user interaction. At the same time, a user ID can be associated with up to ten mailboxes. The message You have mail notifies you of mailbox requests. Invoke the mailbox with the direct command MAIL. You can then take appropriate steps and manually set the conditions necessary for the job to continue.

The concept of mailboxes thus allows you to integrate manual actions into the job network.

The following figure illustrates an example of a mailbox Paper Supply:



The condition Paper OK is defined as input condition for Job 2.

On receiving the message "Condition 'Paper OK' pending", you can supply the required amount of paper and set the condition manually, directly in the mailbox window at your terminal. Entire Operations can then proceed with the next job (print report).

### **Mailbox SYSDBA**

The mailbox SYSDBA, which is accessible for the owner SYSDBA, contains all messages for which no recipient was defined.

You can find a detailed description of all mailbox features in Section Mailboxes.

# **Operating System Server Nodes**

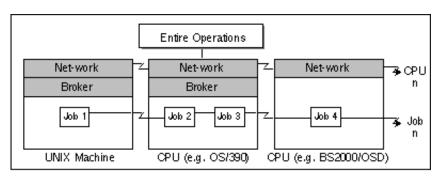
Nodes are Entire System Server nuclei or NPR/UNIX servers and refer to machines or CPUs on which requests to the operating system are executed. They are distinguished by numerical identifiers in the same way as data base IDs distinguish between different Adabas data bases. Within Entire Operations, each UNIX and Windows NT server is assigned a node number. More than one operating system server node can reside in one physical machine.

The machines identified by node IDs can run different target operating systems. Entire Operations recognizes the operating system, thus allowing cross-operating-system job control.

Communication paths between otherwise isolated nodes are provided by the Software AG products Entire Net-work and Entire Broker, which allow a transparent connection of nodes, irrespective of how they are physically linked.

When defining a job network in Entire Operations, you can specify default node IDs for the JCL and execution of all jobs in the network. These default node IDs can be overridden for any job, so that different jobs within the same network can run on different machines.

The following figure illustrates multi-CPU support provided by Entire Operations:



## **Master Data Base and Active Data Base**

#### • Master Data Base

The **master data base** stores all user, job network, job and scheduling definitions. It also contains all information pertaining to defined logical conditions, resources, calendars, and symbol tables. All information stored on the master data base can be maintained online.

#### • Active Data Base

When a job network is activated, it is copied to the **active data base**. The active data base can contain several copies of the same job network, each distinguished by its unique run number. All current information pertaining to condition status, job status, active JCL and symbols is contained in and can be modified on the active data base.

The master and active data bases are normally located within the same physical DB file.

# **Monitor - Server**

The Entire Operations Monitor activates and processes job networks according to their scheduled dates and times. This includes the following functions:

- Activation of scheduled job networks;
- Check of prerequisites to job submission (input conditions and resources);
- Job submission;
- End-of-job checking and actions;
- Logging of all events.

# **Two Modes of Monitor Operation**

In technical terms, there are two ways of running the Monitor: as one or several subtask(s) or as a batch task.

#### **Subtask-s**

The Monitor can be run as one or several subtask(s) of an Entire System Server task in OS/390 or VSE/ESA operating systems.

The JCL of the Entire System Server task (XCOM node) must be extended to meet the needs of the Monitor. The XCOM parameters must also be extended. The REGION assignment for the Entire System Server task must be large enough to contain the Monitor. For more details, see Section Installation and Customization on Mainframe Platforms in the Entire Operations Installation Documentation.

The advantages of this method are:

- all Entire System Server calls of the Monitor against its host node are handled locally, without any inter-PROCESS communication, and
- Entire System Server and the Entire Operations Monitor share the same address space.

#### **Batch Task**

The Monitor can be run as its own batch task in BS2000/OSD.

The Monitor can run as any normal batch job. The functions it provides in this mode are the same as when it runs as an Entire System Server subtask. However, as a batch task, the Monitor requires that the operating system server node must be active all the time it is active itself.

From an implementation point of view, the Entire Operations Monitor is a special user within Entire Operations. The difference is that the Monitor is not driven by any terminal input but by its own processing rules.

The system administrator can define a time interval between Monitor **cycles**. At the beginning of a cycle, the Monitor "wakes up" and checks the Entire Operations work queues, performing any necessary actions such as submitting jobs and end-of-job analysis. The time between cycles depends on the number of jobs defined to the system and the average job run time. The shorter the **wait time**, the shorter the interval between job termination and its end-of-job analysis. The price for this is increased overhead due to

Monitor reactivation.

## **Distributing Monitor Functions to Subtasks**

The individual functions that the Entire Operations Monitor performs can be distributed to several subtasks. This subtasking allows processes to run in parallel and increases performance. Monitor functions can be distributed to subtasks under OS/390, VSE/ESA ,BS2000/OSD and UNIX.

For information on how the usual Monitor functions can be distributed, see the subsection Monitor Task Profile in Section System Administrator Services of the Entire Operations Administration Documentation.

# **Monitor Start Network**

If a job network with the name MON-START is defined under the owner SYSDBA, this network is executed exclusively at **each** Monitor startup. This is called the **start network**.

No other job network is started until the start network is terminated correctly.

The last job of the start network must not **set** any condition (but can **reset** conditions). During execution of the start network, the absolute condition SYSDBA/MON-START-RUNNING is set.

If any job of the start network ends not OK, this condition remains true and blocks any other Monitor action. The condition can be reset manually to free continuation of other processing. While the absolute condition is active, the message **Start Network still running** appears in the log and on the system console during each Monitor pass.

# **Activation**

Activating a job network or job means preparing it for execution. On activation, the following is performed:

- The definitions of jobs, networks, logical conditions, symbol tables etc. are copied to the Entire Operations active data base and assigned a unique run number;
- If necessary, Symbol Prompting is requested. However, symbol prompting is not performed for any subnetworks.
- The global activation exit user routine is invoked, if defined in the Entire Operations defaults;
- The JCL defined for jobs within the network is copied to the Active JCL storage on the active data base:
- Variables (symbols) used in dynamically generated JCL are substituted by their current values. This does not apply to variables defined to be substituted at job submission time;
- The card definitions of active job networks, respectively of active jobs, can differ from the card definitions in the master definition. To allow this, the corresponding symbol tables must contain certain reserved symbols on activation. See also the subsection Predefined Symbols.
- If you use pre-generated JCL, symbol replacement is performed at the time of JCL generation.
- The Entire Operations Monitor recognizes the job network as active and checks time frames, input
  conditions and resources defined for the jobs. If all prerequisites for any jobs are fulfilled, these jobs
  are submitted.

### **Terminology**

In this documentation and on the user interface, the terms "activation" and "network start/job start" are used.

- "Activation" denotes the process of creating an active copy of a network or job definition.
- "Network start/job start" denotes the actual execution start time of the activated/active job network or job.

### **Automatic Activation**

Job networks are activated **automatically** in two steps:

- At the beginning of a new day or during Monitor startup, all schedules are checked for job networks to be executed during that day. This process is called **schedule extraction** and the data extracted are called the **activation trigger records**.
- The activation trigger records force job network activation a short time before the earliest start of the network. This time span can be defined in the Entire Operations defaults.

#### **Notes:**

- 1. If no earliest start time is defined on the network level, the network is activated immediately after schedule extraction.
- 2. The modification of a calendar or schedule always triggers a schedule extraction for the dependent job networks. For this reason, a job network could be activated even for the current day after such a modification.

### **Automatic Activation and Symbol Prompting**

After the creation of an activation trigger record, active symbol tables are created for the specific network run. If there is at least one symbol marked as **to be prompted** within these active tables, a symbol prompt request is sent to the mailboxes of all users defined as message recipients for that network.

The network activation is kept in hold, until any user sees the request and enters or confirms the symbols to be prompted. For this reason, schedule extraction can be performed several days in advance. (See the subsection Global Activation Extraction in Section System Administrator Services of the Entire Operations Administration Documentation).

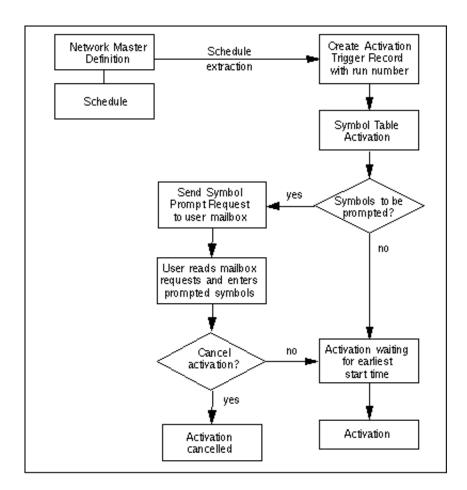
### **Manual Activation**

It is also possible to activate a job network **manually** irrespective of any defined schedule. This may become necessary for a number of reasons, for example:

- No schedule has been defined for the job network;
- To override defined activation date and time;
- The job network is not scheduled for the required date.

A job network or job activation can also be triggered by any event within Entire Operations, for example by the termination of another job network or by the Entire Operations Application Programming Interface (API). Like manual activation, this can be performed at any time.

Symbol prompting for active symbols is also performed, when a job or network is activated manually, if at least one symbol of a symbol table used by the job or network is appropriately marked.



# Run Number

Entire Operations automatically assigns a run number to each active copy of a job network on the active data base. This run number uniquely identifies the active copy of a job network and is automatically passed to its jobs, input conditions, etc.

The run number is assigned:

- during the creation of an activation trigger record;
- during a manual activation;
- if a network is activated by an API routine.

Run numbers are in the range 1 to 99999 by default and are unique on network level. When the maximum run number has been reached, assignment again starts from 1.

The upper limit for run numbers can be modified in the Entire Operations Defaults. For more details, see Section System Administrator Services of the Entire Operations Administration Documentation.

The assignment of a run number for each activation of a job network allows multiple activations of a job network on the same date, and allows you to distinguish between multiple active copies of the same job network.

#### **Notes:**

There is no guarantee that subsequent activations will have ascending run numbers.

They are as unpredictable as operating system job numbers.

Entire Operations retains the last run number, even for deleted job networks. If you define a new job network of the same name, the new run numbers start from the deleted network's last run number incremented by 1.

# **Schedules**

A schedule is a predefined time table according to which a job network is activated. Entire Operations monitors schedules to determine which job networks are to be activated.

You can define activation dates in a schedule as explicit dates or relative dates (days of the week, days of the month or a combination of days and months).

Entire Operations can optionally account for holidays when activating a network. For example, if you schedule a job network to run on every first day of a month and the schedule table is based on a calendar in which Saturdays and Sundays are defined as non-working days, then Entire Operations does not start the job network if the first day of the month is a Saturday or Sunday. Activation can be postponed until the following working day (Monday). In other words, Entire Operations can automatically interpret the **first day of a month** as the **first working day of a month**.

A schedule can be based on a predefined calendar which distinguishes between working days and non-working days (see following subsection).

You can inspect the defined schedule in calendar format, irrespective of whether activation dates are defined as explicit or relative dates: Entire Operations automatically translates relative dates into explicit dates.

You can make the execution of single jobs in a network dependent on their position in the schedule (for example, first schedule day of the week) or in the calendar (for example, last workday of the year).

# **Calendars**

Calendars can form the basis for schedule tables defined for jobs and job networks. An Entire Operations calendar distinguishes between working days and non-working days as defined by the user (weekends, national holidays, personal vacations).

Calendars can be modified to change, include or delete non-working days. Modifications to calendars can affect the associated job network schedule(s).

Calendars are identified by owner, name and year, and can belong to an owner or be used system-wide. You can specify a system calendar or a calendar belonging to your owner for a schedule table, but you can only modify calendars belonging to your owner. System calendars can be modified by authorized users only.

Any number of calendars can be defined to Entire Operations. For further details, see Section Calendar Maintenance.

The following is an example of a calendar:

24.07.00 Owner EXAMP	LE								3.2.1 *** Year 1996			10:20:26
	J	uly				Αι	ıgus	st			September	
Monday	1 8	15 2	2 29			5	12	19	26		2 9 16 23	30
Tuesday	2 9	16 2	3 30			6	13	20	27		3 10 17 24	
Wednesday	3 10	17 2	4 31			7	14	21	28		4 11 18 25	
Thursday	4 11	18 2	5		1	8	15	22	29		5 12 19 26	
Friday	5 12	19 2	6		2	9	16	23	30		6 13 20 27	
Saturday	6 13	20 2	7		3	10	17	24	31		7 14 21 28	
Sunday	7 14	21 2	8		4	11	18	25		1	8 15 22 29	
		_									_	
		ctobe				No	over	nbei	£		December	
Monday		14 2				4	11	18	25		2 9 16 23	30
Tuesday	1 8	15 2	2 29			5	12	19	26		3 10 17 24	31
Wednesday	2 9	16 2	3 30			6	13	20	27		4 11 18 25	
Thursday	3 10	17 2	4 31			•	14				5 12 19 26	
Friday	4 11	18 2	5		1	8	15	22	29		6 13 20 27	
Saturday	5 12	19 2	6		2	9	16	23	30		7 14 21 28	
Sunday	6 13	20 2	7		3	10	17	24		1	8 15 22 29	
Enter-PF1	PF2	PF3	-PF4	PF5-	I	PF6-	I	PF7-	PF8P	F9-	PF10PF1	1PF12
Help		End	Wkd	Y			Ţ	Jp	Down			

# **Symbol Tables**

Symbol tables are user-defined and contain a list of variables and their current values to be used in normal JCL and Dynamic JCL Generation. The name of the required symbol table must be specified when defining an Entire Operations job of the MAC type, and, if it contains the escape character denoting a variable, also when defining a JOB-type job.

You can maintain symbol tables manually within Entire Operations. Alternatively, they can be modified by programs or user routines by a predefined Natural subroutine (API) delivered with Entire Operations. This allows modification of symbol tables during job network processing.

For an explanation of how to use symbol tables, see the immediately following subsection Symbol Replacement and the subsection Dynamic JCL Generation. Further information can also be found in Section Symbols.

### **Symbol Replacement**

Entire Operations enables the text substitution of symbols (variables), regardless of which physical JCL location you use. Symbols are usually replaced during the activation of a job network or job, that is, during the loading of the active JCL to the active data base.

Symbols to be replaced are detected by a preceding **escape character** anywhere in the JCL. The symbol name is limited by a text delimiter, like a blank, a comma (,), a semicolon (;), a period (.), etc. A single period (.) after a symbol is removed during replacement. But two consecutive periods (..) are converted to one period (.). This is important for the dynamic creation of file names. Recursive symbol replacement (symbols within symbols) is also possible.

Entire Operations first searches for a symbol in the active user-specific table. After this, it searches in the master user-defined table, in the network default table, and finally in the system-wide table. If it searches for the symbol in a sub-network, the symbol tables of the calling job of type NET as well as the symbol tables of the superior job networks are searched (in ascending order), if necessary. If the symbol cannot be found anywhere, the job is set to error status.

In certain cases, symbol replacement can even be used in file names, messages texts, etc.

### **Active Symbol Table**

During activation, an active copy of a symbol table is created by copying it to the active data base. This is then called the **active symbol table**. Symbols to be replaced are taken from the active symbol table. This enables different values of the same symbols to be generated for different runs of the network or job.

For a scheduled network activation you can select, in the network definition, the time to activate the symbol table. This can be either:

- directly after the schedule extraction; this allows enough time for manual symbol replacement;
- or during the network activation. In this case, however, manual symbol replacement is **not** possible.

### **Symbol Escape Characters**

There are two kinds of escape characters:

#### • activation escape character

Enables symbol replacement at activation time. This is the usual escape character.

#### • submission escape character

To enable symbol replacement just before job submission, a second escape character, called the **submission escape**, is supported. This enables the replacement of symbols which can be changed by predecessors during network execution, for example, a volume serial number.

Both activation escape and submission escape characters can be defined as system-wide defaults in the Entire Operations default settings. However, different escape characters can be used for each job, if necessary.

#### **Note:**

If you change escape character definitions for existing JCL, symbols to be replaced can no longer be detected.

You should never define escape characters already used by other (operating system) JCL features (for example: parameters for DO-Procedures and SUBDTA characters in BS2000/OSD). Do not use the dollar sign \$ in BS2000/OSD or UNIX, because it has a special meaning in these operating systems.

Recommended escape characters:

<b>Operating System</b>	<b>Escape Characters</b>
OS/390, etc.	§ and \$
VSE/ESA	§ and #
BS2000/OSD	^ and '(accent grave)
UNIX, Windows NT	no recommendation

# Job Control Language - JCL

Job control language is used in Entire Operations as follows:

#### Master Job Control Language

This is the JCL in its original format on the original storage medium. The usual JCL storage locations of the various operating systems are supported. The source texts for dynamic JCL generation are also considered Master Job Control Language.

#### Active Job Control Language

This is the actual JCL submitted to the operating system for execution. It is produced from the Master JCL when the job or network is activated. The symbols are replaced with values from the active symbol table. If it is dynamic JCL, the generation is performed at this time. The active JCL is stored in the active Entire Operations data base.

#### • Pregenerated active Job Control Language

For reasons of performance, it might be necessary to generate active JCL in advance. Pregeneration is invoked with a line command from the Job Maintenance screen.

The JCL must be pregenerated again when:

- the definition of the Master JCL storage has been modified;
- the Master JCL has been edited;
- the corresponding symbol table has been modified.

#### **Notes:**

- 1. Symbols for replacement can be defined for all storage locations of Master JCL.
- 2. Escape characters for symbols can be assigned system-wide, and they can also be defined individually for each job.
- 3. Escape characters for symbol replacement must not conflict with other characters used in the JCL.

# **Dynamic JCL Generation**

When Entire Operations activates a job network, the JCL of the jobs in the network is copied onto the active data base. Entire Operations provides a facility which allows you to use variables in the original JCL and which can create parts of the JCL depending on program logic. Variables are substituted by their current values either at activation time or at job submission time (see the subsection Symbol Replacement in this section). This is referred to as Dynamic JCL Generation and applies only to MAC-type jobs in Entire Operations.

Dynamically generated JCL is useful if you wish the JCL to contain a step only under certain circumstances, for example, if the current date is YYYYMMDD, include job step X.

Dynamic JCL can be defined for MAC-type jobs using the Edit function in the Job Maintenance facility of Entire Operations. To convert existing JCL to the Entire Operations MAC format, use the JCL-IMPORT function in the job definition with JCL location as NAT. In all cases, the Editor command MACRO must be used to generate the final JCL. The Editor command TEST can be used to test the generated JCL.

### **Escape Character in Dynamic JCL Generation**

The activation escape character at the beginning of a line distinguishes the line as a Natural statement from the JCL. The use of Natural statements provides full Natural functionality in dynamic JCL, including access to Adabas and Entire System Server. This means you do not need to learn any special control statements. All Natural statements used in dynamic JCL must be coded in structured mode.

Variables are user-defined and can be used in any part of the JCL, including the file name and control card. Variables are distinguished in the JCL by preceding them with an escape character: the **activation escape** denotes variables to be substituted at activation time, the **submission escape** denotes variables to be substituted at job submission time.

#### Note:

These escape characters can be changed by the system administrator. However, this should only be done if absolutely necessary, for example for countries with a different alphabet. See the subsection Symbol Escape Characters on the preceding page.

It is not advisable to use escape characters which have a defined meaning in a particular operating system or which are already defined as escape characters, e.g. \$ in BS2000/OSD or UNIX.

### Variables in Dynamically Generated JCL

You can use four types of variables:

- A variable from the symbol table specified for the job;
- A variable from the parameter section (P-...);
- A local variable defined in this Natural program, which can be computed in your program (L-...);
- A Natural system variable (TIME, DATE etc.) which is distinguished by an asterisk (\*), for example,
   \*TIME.

#### Note:

All variables with prefixes other than 'P-...' 'L-...' or '\*...' are assumed to be found in the symbol table

Symbol replacement itself (without embedding Natural statements) is also available for standard JCL (JOB-type jobs). See the subsection Symbol Replacement in this section.

#### Sample JCL

The following sample JCL illustrates the use of variables in the dynamically generated JCL of a MAC-type job in Entire Operations:

```
§ DEFINE DATA PARAMETER USING NOPXPL-A
§ LOCAL /* ... ALL LOCALS SHOULD START WITH 'L-'
§ 1 L-01 (A30)
§ 1 CLASS (A01)
                       /* FROM SYMBOL TABLE, FOR #GET-SYMBOL
§ END-DEFINE
#GET-SYMBOL CLASS
§ COMPRESS P-NETWORK P-JOB INTO L-01
//{\tt SNNOPEX} \quad {\tt JOB} \quad , {\tt \SP-OWNER} \, , {\tt MSGCLASS} = {\tt \SMSGCLASS} \, , {\tt CLASS} = {\tt \SCLASS}
//STEP01 EXEC PGM=NOPCONTI, PARM='C=0004'
//STEPLIB DD DISP=SHR, DSN=§STEPLIB
//* DEVICE: §*DEVICE, INIT-USER: §*INIT-USER, TIME: §*TIME
//* L-01 : §L-01
§ IF CLASS = 'K' /* SYMBOL USED IN STATEMENT -> #GET-SYMBOL
//* THE CLASS IS §CLASS
//* ANOTHER MSGCLASS FOUND
§ END-IF
//*
```

The variables used in the JCL are assumed to have the following current values:

### **Symbol Table Variables**

STEPLIB	NOP.SYSF.DEV.LOAD
CLASS	K
MSGCLASS	X

### **Natural System Variables**

*DEVICE	ВАТСН
*INIT-USER	EORMON

### Variables from the Parameter Section

P-NETWORK	EX131A
P-JOB	EX-1-24
P-OWNER	SN

When the job is activated, Entire Operations substitutes the variables with their current values. The following JCL is generated as a result:

```
//SNNOPEX JOB ,SN,MSGCLASS=X,CLASS=K
//STEP01 EXEC PGM=NOPCONTI,PARM='C0004'
//STEPLIB DD DISP=SHR,DSN=NOP.SYSF.DEV.LOAD
//* DEVICE: BATCH, INIT-USER: EORMON
//* L-01 : EX131-A EX-1-24
//* THE CLASS IS K
//*
```

See also Section Job Maintenance.

### **Symbols in Natural Statements**

You can also use symbols for replacement of variables in Natural statements such as IF clauses and DECIDE statements. To do this, proceed as follows:

- 1. Define a local variable with the name of the symbol. Length and type must be sufficient for the expected symbol contents.
- 2. Code

```
#GET-SYMBOL <symbol>
```

3. before you access the symbol for the first time. The symbol value is read into the variable by this statement. The function #GET-SYMBOL returns only fields in format A (alphanumeric). You should consider this in your macro JCL and, if necessary, call the Natural function VAL to create numeric symbols. Only one symbol can be accessed per call to the function #GET-SYMBOL.

For an example, see the symbol CLASS in the example.

### **Inserting Natural Text Modules**

You can insert Natural text modules anywhere in a macro JCL using the following syntax:

• #INCLUDE LOC=NAT LIB=library> MEM=<member>

If the text module cannot be read, the JCL generation will be aborted with error. Symbol replacement is possible within the #INCLUDE statement.

#### **Example:**

• #INCLUDE LOC=NAT LIB=JCLLIB MEM=§MEMBER

## **User Routines**

#### **Monitor User Routines**

Monitor user routines must be coded as Natural subprograms and are automatically invoked by the Entire Operations Monitor according to where they are defined. User routines must reside in a Natural library on the FUSER System file, but may not reside in the Entire Operations library.

When user routines are coded as Natural subprograms, they are distinguished as one of the possible types by information specified in a parameter section.

You can define the following types of monitor user routine:

- Routines to check symbol values (plausibility check);
- Dynamic JCL Generation
- Natural programs defined as jobs within a job network (NAT-type jobs);
- Routines to set input conditions;
- Routines for end-of-job checking;
- Routines for end-of-job actions.
- Generation of sysout file names (BS2000/OSD only)

### **Front-end User Routines**

Front-end user routines are coded as Natural subprograms and are invoked by the Entire Operations front end for specific processing.

They can use any user-defined map with the following restrictions:

- The map (Natural object, type M) must be accessible from the Entire Operations library SYSEOR. The easiest way is to copy the required maps into the Entire Operations library.
- Note that Entire Operations can be executed with the following Natural language codes: 1 = English; 2 = German. So it could be useful to supply two maps and to refer to them with the ampersand & as a placeholder representing the current language code. For more information on this technique, see the subsection Multilingual User Interfaces in the Natural Programmer's Guide.

You can define the following front-end user routine:

• Symbol prompting for a network or job activation. For more information, see the subsection Symbol Prompting during Manual Activation in Section Network Maintenance.

### What User Routines Can Do

User routines can be used to check job results and influence job flow by their return codes. Apart from running checks, however, the use of Entire System Server and Adabas technology allows user routines to perform various actions such as

- Data base updates;
- File access and handling;
- Access to operating system functions;
- Plausibility checks.

User routines for the Monitor can perform any Adabas or Entire System Server function, but **must not** perform any type of screen I/O.

Entire Operations checks for the existence of a user routine while it is being defined, as well as at invocation time. Entire Operations treats the non-existence of a user routine as an error. When such an error occurs at invocation time during job processing, the job network execution is interrupted.

User routines can affect the Entire Operations job flow by sending a return code or other information back to the caller after execution, depending on the type and result of the routine.

#### Note:

User routines are invoked by the Entire Operations Monitor, which performs them as subroutines. Do not forget that intensive use of user routines can influence other work to be performed by the Monitor.

#### Warning:

User routines must **never** end the Natural session by themselves, they **must in all cases** return to the program that called them. In addition, no functions are permitted which disturb the Monitor run, such as calling wait time routines.

The following subsections describe the different types of user routine in more detail.

### **Common User Routine Parameter Area**

All user routines under Entire Operations must use the common parameter area NOPXPL-A, which is available in both object and source format in the SYSEOR library.

For this reason, the initial coding of a user routine must always resemble:

DEFINE DATA PARAMETER USING NOPXPL-A

#### Where User Routines Can Be Used

The field P-CALL-PLACE in the parameter list shows from where the user routine was called:

Value	Description
EJA	End-of-Job Action
EJC	End-of-Job Checking
FSB	Sysout file name generation (BS2000/OSD)
ICO	Input condition value determination
MAC	Parameter list for the dynamic JCL generation
NAT	Natural program standalone under Entire Operations (NAT-type job)
SFX	Symbol function exit
SYC	Symbol Plausibility Check
SYF	Symbol functions

### **Parameters Used for Different Call Places**

Field Name	Format	Call P	lace							
P-CALL-PLACE	(A03)	MAC	ICO	NAT	EJC	EJA	SYC	SFX	FSB	SYF
P-RC	(N04)	-	out	out	out	out	out	out	out	out
P-RT	(A66)	-	out	out	out	out	out	out	out	out
P-OWNER	(A10)	in	in	in	in	in	in	in	in	in
P-NETWORK	(A10)	in	in	in	in	in	(3)	in	in	in
P-JOB	(A10)	in	in	in	in	in	-	in	in	in
P-RUN	(P13)	in	in	in	in	in	(3)	in	in	in
P-ACTIVATION-TIME	(T)	in	in	in	in	in	(3)	-	in	-
P-EXECUTION-NODE	(N03)	in	in	in	in	in	-	in	in	in
P-EXECUTION-OPSYS	(A08)	in	in	in	in	in	-	-	in	-
P-SYMBOL-TABLE	(A10)	in	in	in	in	in	-	in	in	in
P-CONDITION	(A20)	(2)	in	-	(6)	(6)	(4)	(4)	-	(4)
P-JOB-NUMBER	(N05)	-	-	-	in	in	-		-	-
P-SYSOUT-FILE	(A54)	-	-	-	(1)	(1)	(5)	(5)	out	(5)
P-FSB-OBJECT-TYPE	(A05)	-	-	-	-	-	-	-	in	-
P-FSB-USERID	(A08)	-	-	-	-	-	-	-	in	-
P-FSB-CATID	(A04)	-	-	-	-	-	-	-	in	-
P-FSB-SUFFIX	(A02)	-	-	-	-	-	-	-	in	-

#### **Remarks:**

P-RC Return Code P-RT Return Text

- 1. in; BS2000/OSD only
- 2. in; contains P-SUFFIX in first 10 bytes
- 3. in; only for active symbols
- 4. in; here: P-SYMBOL (A20)
- 5. in; here: P-SYMBOL-VALUE (A54)
- 6. in; contains P-JOB-ID (A5) in first 5 bytes

#### **Predefined Symbols**

See the subsection Predefined Symbols in Section Symbols for a list of predefined symbols.

#### **Common Considerations for User Routines**

All user routines must return the field P-RC (return code). 0 (zero) means OK.

The field P-RT (return text) can be used optionally to pass back some specific information. Entire Operations writes this text into the log and displays it on the Active Jobs screen, if supplied.

All other parameters pass environment information to the user routine. Some parameters are not always used. See the above table for details.

#### **Restrictions:**

- 1. ON ERROR routines **must not** be coded in any Entire Operations user routine. Error handling is performed by a global Monitor error routine. Monitor failures are possible if this is not adhered to.
- 2. No programs with their own GDA may be invoked.
- 3. The names of user routines may not begin with the letter **V**, particularly if they are to be stored in the library SYSEOR, because the prefix **V** is reserved for the internal Entire Operations exit directory.
- 4. The following Natural statements **may not be coded** in any user routine invoked by Entire Operations:
  - STOP
  - TERMINATE
  - FETCH without RETURN (FETCH RETURN is allowed)

#### Note:

If you want to use the values of the special parameters in macro-JCL, you must first read them with the special statement #GET-SYMBOL.

### **Natural Programs**

In Entire Operations, Natural programs can be defined as NAT-type jobs within job networks. They have no JCL and are executed directly by the Entire Operations Monitor. Like all jobs, NAT-type jobs are defined using the Entire Operations Network and Job Maintenance facility (Network and Job Maintenance option on the Main Menu).

You can maintain NAT-type jobs like any other job, that is, they can be associated with input and output conditions, resources, etc. (see Section Job Maintenance).

### **Routines to Set Input Conditions**

Before Entire Operations can submit a job, all its input conditions must be fulfilled.

If a user routine is defined for the condition, Entire Operations invokes the defined routine when checking condition status. After execution, the routine returns a code which is compared with the condition code defined as desired value for the input condition. The condition is automatically set if the codes match. If the codes do not match, you find a user-defined text on the Active Jobs screen. You can define the text with the P-RT parameter.

For an example of a user routine to set an input condition, see the subsection Input Condition Maintenance in Section Job Maintenance.

### **Routines for End-Of-Job Checking and Actions**

You can define user routines as part of end-of-job checking. Entire Operations bases its end-of-job checking on the occurrence of defined events during job execution. You can define a user routine as an event check. Entire Operations automatically executes the user routine when the job terminates.

Typically, such a routine can check the result of a job, for example. The user routine returns a code which determines the event status. A return code zero means Check OK, any other return code means Check not OK. Condition codes returned by user routines can determine end-of-job status.

End-of-job action routines can be used to perform any actions after job termination.

End-of-job checking and action routines are supplied with both the job number and the name of the sysout file in which Entire Operations collected the job sysout (BS2000/OSD only).

For an example of a user routine triggered in end-of-job checking, see Section End-Of-Job Checking and Actions.

# **Accessing Entire Operations from other Applications**

# **API - Application Programming Interface**

The Entire Operations library contains some routines that can be invoked from any other Natural application to provide access to Entire Operations internal data. These routines are called the Application Programming Interface and can be invoked simply with a Natural CALLNAT statement.

The Application Programming Interface provides the following features:

- Dynamic connection to the Entire Operations data file;
- Access to conditions;
- Access to symbols;
- Writing to the Entire Operations log.

The Application Programming Interface can be used for a number of purposes within and outside Entire Operations. Among them are:

- Dynamic modification of symbol tables during the execution of a job network;
- Modification of conditions from Natural programs;
- Exchanging information between Entire Operations and any other online or batch application;
- Setting input conditions for job networks from online applications;
- Inquiring the status of job networks from applications;
- Setting Entire Operations symbols from external tables;
- Inquiring Entire Operations symbols for use in external applications.

For more details, see Section API Routines.

# **Submission of Jobs by Entire Operations**

Jobs defined and scheduled in Entire Operations are submitted automatically under the control of the Entire Operations Monitor. During the submission process, the submitted JCL can be handled in any of the following ways:

- Completion or modification of the job card(s) according to the Entire Operations defaults;
- Checking of all submitted JCL by a global user exit (to be defined in the Entire Operations defaults);
- Insertion of header information as comments into the submitted JCL. This is always performed. The header information can be viewed in the job sysout and resembles the following:

```
Job SNNOPEX (1355) Type SM File 2----- Columns 001 072
                                            SCROLL===> CSR
====>
\label{eq:class} \texttt{1 //NOPE01J1 JOB ,SN,CLASS=G,MSGCLASS=X,MSGLEVEL=(1,1),}
        // TYPRUN=SCAN
00002
00003
           *** $ACFJ219 ACF2 ACTIVE DAEF
          00004
          *** SOFTWARE AG
00005
          ***
00006
                   ENTIRE OPERATIONS
          ***
00007
          *** Owner: SN Run: 328

*** Network: SN-2 Symbol Table: EXAM-ST1
80000
00009
00010
           *** Job: CHECK-TIME Escape Act: § Sub: $
00011
                           Submit Userid: SN
00012
          *** 04.09.92 15:15 activated by SN
00013
          *** 04.09.92 15:15 created/modified by SN
00014
          *** 04.09.92 15:15 submitted
00015
00016
          *** Symbols replaced at Activation Time:
00017
00018
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help End Quit Rfind Up Down Left Right Curso
```

#### Note:

In BS2000/OSD, the LOGON card is checked. If nothing else was specified at job definition, the LOGON parameters, account-number, job-class, monitoring job variable (with password, if specified) are taken from here. Job priority, run priority and CPU time limit can also be given via LOGON card.

 Insertion of information about all replaced symbols and their current values, if any symbols were replaced. For example:

```
Job SNNOPEX (1355) Type SM File 2----- Columns 001 072
                                                      SCROLL===> CSR
             *** 04.09.91 15:15 submitted
00015
             00016
             *** Symbols replaced at Activation Time:
00017
             ***
00018
             *** Symbol : UID
00019
00020
             ***
                 Owner : SN Symbol Table: EXAM-ST1
00021
             ***
                  Modif.: SN at 91-02-05 12:31
             *** Value : SN
00022
             *** Symbol : CLASS
00023
             ***
00024
                 Owner : SN Symbol Table: EXAM-ST1
00025
             * * *
                 Modif.: SN at 91-02-05 12:32
             ***
00026
                 Value : G
             *** Symbol : MSGCLASS
00027
             *** Owner : SN Symbol Table: EXAM-ST1
00028
             *** Modif.: SN at 91-02-05 12:32
00029
00030
             *** Value : X
00031
             *** Symbol : P-EXECUTION-NODE
00032
             *** Value : 146
             *** Symbol : JOBLIB
00033
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                        Down
                                                  Left Right Curso
    Help
              End Quit Rfind Up
```

 Replacement of symbols in the JCL with their current values at submission time in MAC and JOB type jobs.

# Job Execution as a Dummy Job

The execution of a dummy job means that the job is running without job control and without its own action within Entire Operations. Dummy jobs can have an **expected run time**, which they will be waiting in the system. Dummy jobs will **always** terminate with the state **o.k**.

### **Permanent Dummy Jobs**

Permanent dummy jobs are declared as a dummy in the **master job definition** already (see Adding a Job Definition in Section Job Maintenance). To do this, the job type DUM is used.

### **Temporary Dummy Jobs**

Temporary dummy jobs have a **master JCL definition** (see Defining a JCL for a Job in Section Job Maintenance). They are executed as a dummy for a particular run. During its activation, a job can be put into the state 'temporary dummy job' for the following reasons:

Dummy because of	Description
Definition	With an identifier in the <b>master job definition</b> (see Adding a Job Definition in Section Job Maintenance), the JCL definition can be maintained, but the execution as dummy job can be forced.
Schedule	Depending upon the schedule of the network or upon a calendar, a job can be submitted as a temporary dummy job on particular days.  For further details, see Defining Schedule Dependency for a Job in Section Job Maintenance.
Prerequisite	It can be defined that the existence or non-existence of an active prerequisite results in execution as a temporary dummy job.  For further details, see Possible References for Conditions in Section Job Maintenance.
Recovery Action	If a job is not to be submitted again in case of a defined recovery action. For further details, see Defining Recovery Action in Section End-Of-Job Checking and Actions.
JCL check	Execution of the job control in the mode 'JCL Check'. Thus, <b>jobs</b> (see Field Descriptions: Job Activation) or <b>Job Networks</b> (see Field Descriptions: Network Activation) are activated for the JCL check.
Empty JCL	If the loading process of the job control reveals that the JCL is empty, then the job will be submitted as a temporary dummy job.  This state can result from the JCL generation by means of macro instructions, for instance.
Multiple Suffixes	If the activation is to take place by means of multiple suffixes: if the multiple symbol used does not contain any occurrences, then a dummy job will be activated as a placeholder in the network during activation.

### **Influence on the End-Of-Job Actions**

For temporary dummy jobs, the end-of-job actions are partially carried out otherwise, as if the jobs would run in normal mode. For a detailed description, see End-Of-Job Actions with Execution as a Temporary Dummy Job.

## **Supervision of Running Jobs**

Running jobs are checked as to whether they have exceeded their predefined deadline time.

If this is the case, a message:

- is sent to all mailboxes linked to the network;
- is sent to Con-nect (if linked);
- is written to the log;
- also appears on the Active Jobs screen.

# **Logging Facility**

The Entire Operations Logging facility records every event and user action during job network processing. This information is available online. From the system log, you can select more detailed logs for individual jobs if logging at job level is specified at job definition time.

The **default system log** displays information about activities in the system as a whole such as user actions, date and time of events and messages about events. If more information is available for any item on the system log, it is preceded by an asterisk (\*). Log information at the job level can be any of the following:

#### • JCL log

Displays the JCL of a specific job run;

#### • Sysout log

Displays the sysout of a specific job run;

#### • System message log

Displays all operating system messages about jobs. The system log displays the first of these messages. You can select a job from the system log to display all system messages for that job.

A selection window in the Logging facility asks you to select the default log according to owner, network, job and run number.

For more information, see Section Log Information.

# **Error Messages**

# Where Error Messages Are Written to

Entire Operations displays error messages at the following locations:

Location	Description
On the current screen	If Entire Operations is used online. In many cases, additional error information is written to the "Entire Operations log". Subsequent to more complex errors it is recommended to have a look there. For more information, see Log Information.
List of the active jobs, Message column)	Contains the last status message or error message for the active job.
Entire Operations Log	Contains all status messages and error messages.  If database problems prevent you from writing to the log file, then the messages will be written to the sysout of the monitor tasks.
Monitor tasks sysout	Contains mainly start and end messages of the monitor tasks. In this case, some other important events are also logged in addition.
Console	On mainframes, weighty messages of the monitor tasks are written to the System console.  In most cases, they are to be answered by the operator.  An example of this is the non-availability of the database, while the Entire Operations monitor is running.

# **Language of the Error Messages**

In Entire Operations the languages English and German are available.

Location	Description
On the current screen	The language which is defined in the user profile (see the subsection Entire Operations 3.2.1 Defaults in Section System Administrator Services of the Entire Operations Administration Documentation).
List of the active jobs, Message column)	The language which is defined in the user profile (see the subsection Entire Operations 3.2.1 Defaults in Section System Administrator Services of the Entire Operations Administration Documentation).
Entire Operations Log	The language which is defined in the user profile (see the subsection Entire Operations 3.2.1 Defaults in Section System Administrator Services of the Entire Operations Administration Documentation).  Log messages are saved independent of the language. Each user can have them displayed in his or her own language.
Monitor tasks sysout	Depends upon the Natural environment language of the Entire Operations monitor.  This language can be set using the Natural parameter ULANG for instance.
Console	Depends upon the Natural environment language of the Entire Operations monitor.  This language can be set using the Natural parameter ULANG.

# **Reporting Facility**

The Reporting facility provided by Entire Operations is designed to help you define entities, monitor the system and plan workloads.

The following reports are available:

#### • Log - Terminated Jobs

Lists all jobs which terminated within a given date range;

#### • Log - Abended Jobs

Lists all jobs within a given date range which terminated Not OK;

#### • Log - Jobs not Started

Lists all jobs within a selected time range which were not started. These are jobs, for example, which exceeded their latest start time or which were waiting for input conditions.

#### Accounting Data

Provides information on job elapsed times and CPU times of previous network executions;

#### • Network Description (short)

Displays the components of the specified job network, including input conditions, schedules and end-of-job checking and actions;

#### • Network Description (detailed)

Displays the same information as the short network description, but includes a text description of the network (see the following subsection);

#### • Network Job Flow Display

Provides short overview of job flow within a network.

Output can be sent to a designated printer;

#### • Jobs Schedule

Displays schedule of all jobs for a specified date range;

#### • Network Activation Summary

Produces a status report of all network activations for a given day.

#### • Network Schedule Overview

Provides an overview of all scheduled network activations.

See Section Reporting for further details.

# **Editor**

Entire Operations provides a version of the Software AG Editor, especially adapted to the Entire Operations environment.

You can use the Entire Operations Editor to perform the following:

- Create or edit JCL for jobs. Existing JCL can be edited, even if it was written outside of Entire Operations using other editors;
- Write Natural programs to run as jobs in job networks or be executed as user routines;
- Write and browse text descriptions at the network, job, and event level (online documentation);
- Display JCL, job sysout and listings in browse mode (no editing possible);
- Display the Entire Operations system log.

The Editor is described in detail in the **Software AG Editor Documentation**.

# **Cleanup of the Active Database**

The operative data of Entire Operations must be removed again from the active database after a certain time. Part of this process is the removal of work files as well, which Entire Operations has created in the file system for job control purposes.

- The **retention periods** for active objects can be defined (see Entire Operations Administration Documentation).
- The cleanup may be defined to be carried out **automatically** every day. If no **time** is defined for the cleanup, then it will be started at 00:00. A **time** for the daily cleanup start can be defined. For a more detailed description, see Entire Operations Administration Documentation.
- The cleanup of the active database can also be started **manually** any time (see Entire Operations Administration Documentation).
- Furthermore, it is possible to run the cleanup of the active database in a **Natural batch job** (see Cleanup in Batch Mode) exterior to the Entire Operations monitor. The cleanup in batch mode can be executed with the monitor running or shut down.

Please note that the cleanup of the active database depending upon the data quantity to be processed affects the system. It is recommended to schedule the cleanup for **silent** times.

Cleanup runs can also be performed several times a day. This makes it possible to reduce the volumes to be processed per run.

### **Deleting Work Files**

Entire Operations creates files in the operating system under BS2000/OSD, UNIX and Windows NT. Among other things, they contain the job sysout or the JCL to be executed.

During the deactivation of active jobs, which have run in one of these operating systems, the assigned work files are deleted as well.

For BS2000/OSD, the names of these work files might also have been generated with a name exit, which is used for work file deletion, too.

All definitions are created in the Entire Operations Defaults. They are described in the Entire Operations Administration Documentation.

# **Hints on Entire Operations Performance**

Some performance aspects of Entire Operations are dealt with in more detail in Section Performance Considerations in the Entire Operations Installation Documentation.

# Job Control for Jobs under BS2000/OSD

## **Naming Conventions for Work Files**

The name generation for work files under BS2000/OSD is described in the subsection Naming Conventions for Work Files Created by Entire Operations, BS2000/OSD of the Entire Operations Installation Documentation.

# User Exit for the Assignment of BS2000/OSD Work File Names

Names of BS2000/OSD work files can also be generated via an exit (see the subsection Generating Sysout File Names for BS2000/OSD) in Section API Routines.

# **Job Control for Jobs under UNIX**

## **Entire Operations Work Directory**

The environment variable \$EOR\_WORK of NPR/UNIX contains the name of the Entire Operations work directory. Within this directory, the work files are hierarchically stored.

The name generation for work files under BS2000/OSD is described in the subsection Naming Conventions for Work Files Created by Entire Operations, UNIX of the Entire Operations Installation Documentation.

# Job Control for Jobs under Windows NT

The job control system Entire Operations also runs in a Windows NT environment, with the following characteristics:

- Operating system neutral modelling of job networks.
- Entire Operations' functionality and flexibility is now also transparently available on Windows NT.
- Support of DOS batch files and executables (EXE).
- It is not necessary to directly enter Windows NT DOS commands.
- Can also run in mixed mainframe/Windows NT/UNIX environments.
- Job control on several Windows NT machines at the same time.

# Windows NT Version Required

Entire Operations supports Windows NT Version 4.0 or higher. It is recommended to install Service Pack 3 at least.

Windows NT is supported in all language versions.

# **Components Required**

- Entire Operations Monitor
  - The Monitor can run under the operating systems BS2000/OSD, OS/390, VSE/ESA, or UNIX, concurrently controlling jobs executed under BS2000/OSD, OS/390, VSE/ESA, UNIX and Windows NT.
- Entire System Server
  - For accessing mainframe, UNIX or Windows NT operating systems.
- Entire Net-work/Entire Broker
  - The transport layer.
- Entire System Server/Windows NT
  - For accessing the Windows NT operating system. On every machine to be controlled, an Entire System Server/Windows NT server has to be installed. This is installed as a Windows NT service and is administrated with the Windows NT services administration.

# **Integration in Entire Operations**

All Entire Operations concepts from mainframe environments are also available under Windows NT.

Analogously to mainframe NPR nodes, the Windows NT operating system servers are addressed via a node number which is used in addition to the node name (for example, the TCP/IP name) as a short name within Entire Operations (just as under UNIX).

# **Executing Operating System Functions**

For executing operating system functions, there is a server of type NPR/Windows NT on each Windows NT node. This server runs as a background Windows NT process.

The Entire Operations Monitor and the Entire Operations online application use the following components for server communication:

- The SAT (System Automation Tools) communication layer
- The Entire Broker for transmitting client/server requests
- Entire Net-work as the transport layer
- Up to 740 Windows NT nodes can be served concurrently

# Windows NT File Systems

All common Windows NT file systems are supported: FAT, VFAT, NTFS.

### **File Names**

As there is no backslash ( $\setminus$ ) available on Mainframes, Windows NT file names can be written with slash (/) as an alternative as well, if the character sequence +F+ directly precedes the file name. This applies to file names within JCL as well.

### **Example**

Original Windows NT	c:\jcl\script1.bat
<b>Alternative representation</b>	+F+c:/jcl/script1.bat

# **Sysout Redirection**

From the Entire Operations Monitor, all jobs are started which redirect their output to a file. The Sysout files are stored in the Entire Operations work directory. If the job is repeated, the old sysout file is renamed.

# **Entire Operations Work Directory**

The NPR/Windows NT environment variable %EOR\_WORK% contains the name of the Entire Operations work directory. Within this directory, the work files are stored hierarchically.

The name generation for work files under BS2000/OSD is described in the subsection Naming Conventions for Work Files Created by Entire Operations, Windows NT of the Entire Operations Installation Documentation.

The name of the work directory for an active network is available in the predefined symbol P-NADIR. You may store application-specific work files there, provided there are no naming conflicts with files created by Entire Operations.

Work files created by Entire Operations or by the application are deleted by the Entire Operations Monitor on network or job deactivation.

### **Environment Variables**

You can use Windows NT environment variables freely within file names. This corresponds to the behaviour of BAT files. You can combine environment variables and variables from symbol tables.

### **Job Control**

The Windows NT Job Control can be stored in any place. Among other places, it can be stored in Natural text members or in mainframe files. Symbol replacement and JCL generation (job type MAC) are available.

### **Job Start and Job Control**

The Entire Operations Monitor starts jobs based on conditions and on time. Accounting data is retrieved and stored. You can manually cancel the job from the online environment.

### **End-of-Job Check**

Entire Operations adds some 'echo' commands to the Windows NT job control. This allows to control certain messages in the sysout:

- Starting and ending message with timestamp
- Elapsed job time

These messages are used to check whether a job did run completely. Additionally, accounting information is retrieved. For checking the job, strings can be searched for in sysout and end-of-job check routines can be used.

# **End-of-Job Actions**

You can send messages (for example by e-mail) to other users from the Windows NT node. In the Windows NT node definition, a program for sending mail can be defined. It is required that this program can be started from the DOS command prompt. One example for such a program is the shareware "wsendmail". All other forms of news broadcasting, such as the Entire Operations Mailbox, can still be used.

You can define printing of files and of sysout lists as an end-of-job action. For each Windows NT node, a Windows NT print command with a variable for the file name can be defined. User routines can help start further actions.

### **Software AG Editor**

As for other platforms, the job control can be edited with the Software AG Editor on the Windows NT platform. Before writing the file back, the editor creates a backup copy of the edited file.

The editor is also used for displaying job sysout. The editor commands are the same as on the mainframe.

# SAP R/3 Batch Support on UNIX and Windows NT

### **Overview**

Entire Operations supports SAP R/3 batch processing and provides a script language to define SAP R/3 jobs in text files.

- The Entire Operations runtime system may reside on a mainframe or on a UNIX system.
- The communication to an SAP R/3 system requires Entire System Server (UNIX or Windows NT) Version 2.1.1 or higher to be installed.
  - The SAP R/3 system must be reachable from the Entire System Server node via TCP/IP.
- SAP R/3 version3.1h is the lowest version to be supported. It does not matter whether the SAP R/3 system resides on UNIX or Windows NT.

### **Client/Server Infrastructure**

To interface R/3's CCMS Background Processing System, SAP provides the XBP (Background processing) API. This is called via SAP's RFCs (Remote Function Calls) from external programs. The RFC transport protocol is TCP/IP based and is supported for C/C++/Visual Basic. It is available on several UNIX systems and Windows NT (which are the current SAP R/3 platforms).

The Entire System Server offers Entire Operations the necessary information to do job scheduling on Windows NT and UNIX.

The SAP R/3 support is integrated in Entire System Server (UNIX and Windows NT).

#### **RFC Connections**

To use the RFC API, an RFC connection will be established.

Using the destination entry configured by a file ("sideinfo" or "saprfc.ini"), it is possible to select a special R/3 system (system number) on a special host.

The relation between Entire System Server (UNIX and Windows NT) nodes and R/3 destinations is1:N. So from one Entire System Server (UNIX and Windows NT) node, several R/3 systems can be reached.

When a R/3 session is opened, a client, a user, a password and an optional language will be defined.

This means that Entire System Server (UNIX and Windows NT) has to establish several RFC connections for different users or same users with different client parameters.

### **R/3 RFC Session Handling**

- An R/3 RFC session will be opened implicitly by Entire System Server (UNIX and Windows NT) at the first call to any R/3 object.
- When the Entire Operations monitor performs a regular shutdown, or if a Entire Operations online user ends his Entire Operations session, it invokes the Entire System Server (UNIX and Windows

NT) function USER | LOGOUT (with a special flag, if required) to terminate all current R/3 sessions opened by it.

### Job Type R3

The job type "R3" is to be used to define SAP R/3 batch processing jobs.

The execution node of such a job is the Entire System Server (UNIX or Windows NT) node, from which the SAP R/3 system is accessed.

### Script Language for SAP R/3

Entire Operations's R/3 Job Script will be capable to support R/3 job definitions as they are: as mixed sequence of R/3's internal and external job steps.

R/3 Job Scripts can be stored in all locations which can contain plain text files.

On UNIX and Windows NT systems, the JCL location TXT can be used.

See Script Language for SAP R/3 Jobs for details.

### **Scheduling**

Scheduling functions of R/3 XBP are not used. Instead, the common operating system independent scheduling functionality of Entire Operations is used.

Jobs will be submitted (released in SAP R/3) with the start criterion "immediate" only.

#### SAP R/3 Job Submission

The R/3 job submission consists of the following steps:

- 1. The Active JCL (script language) is interpreted, with error checking.
- 2. The R/3 job definition APIs are invoked.
- 3. They are submitted into the R/3 runtime system.

### Online Logon to SAP R/3

Entire Operations provides the direct command "LOGON R3 ..." for an online logon to an SAP R/3 system.

The logon screen is described in the subsection SAP R/3 System in Section Logging on to Entire Operations.

# **Script Language for SAP R/3 Jobs**

### **Advantages**

By introducing a new R/3 Batch Script language, it is possible to completely define R/3 jobs in exactly one text member. The scripts can be added in a normal text editor and general text processing routines can run over these job definitions, without defining special user interfaces to rebuild R/3 dialogs.

### **Features:**

- The script language has an operating system independent (mainframe compatible) format.
- It will be interpreted on Entire System Server (UNIX and Windows NT).
- It supports the complete parameter set for the XBP job step functions SXMI\_XBP\_JOB\_ADD\_ABAP\_STEP and SXMI\_XBP\_JOB\_ADD\_EXTPGM\_STEP.

### R/3 Script Language: Syntax Definition

The syntax is defined as follows:

Value	Description
terminal	Courier text indicates a word or character that must appear exactly as shown. Ambiguous terminal characters are enclosed in single quotes ('').
Nonterminal	Italics indicate a word that is defined further.
	Brackets indicate that the enclosed item is optional.
{choose one}	Forked arrows / a group of words, separated by vertical bars ( ) and grouped with curly brackets, indicates an either/or choice.
[]*	An asterisk (*) indicates that the preceding item(s), which is enclosed in square brackets, can be repeated zero or more times.
[]+	A plus sign (+) indicates that the preceding item(s), which is enclosed in square brackets, can be repeated one or more times.

#### Grammar

The grammar is divided into two parts: the phrasal and lexical grammars.

In the phrasal grammar, whitespace is insignificant. Space, tab, return, and linefeed characters are considered whitespace. Comments are considered whitespace. Comments consist of the characters between /\* and \*/ (not nested), and between // and a return or linefeed character.

#### **Phrasal Grammar**

script:

step-definition\*

step-definition:

{ abap-step-definition | external-program-definition }

abap-step-definition:

{abap[-step]}: expression

```
external-program-definition:
```

```
{external[-program][-step]}: expression
```

#### expression:

```
{ parameter-expression | compound-expression }
```

#### parameter-expression:

```
{ symbol = string | symbol = compound-expression }
```

#### compound-expression:

```
( expression-sequence ) | begin expression-sequence end
```

#### expression-sequence:

```
expression [ expression ]+
```

#### **Lexical Grammar**

#### string:

```
{ " character-sequence " }
```

#### character-sequence:

```
{ string-character | escape-sequence }*
```

#### string-character:

```
< any displayable ASCII char from 32 to 127, including tab character, without " >
```

#### escape-sequence:

```
пп
```

#### word:

#### alpha:

```
{ 'a' | .. | 'z' | 'A' | .. | 'Z'}
```

digit:

```
{ '0' | ..| '9' }
```

### **Script Language Examples**

### Example 1

```
/*
    *R/3 Job Script Example
    *
    */
    // step (1) - calls abap program SALARY
    abap: program = "SALARY"
    // step (2) - calls abap program SALARY with SPECIAL variant
    abap: begin
    program = "SALARY"
    variant = "SPECIAL"
        sap_user_name = "HARRY"
    end
    // step (3) - create tapes
    external: begin
    program="/usr/bin/archive.sh" parameter="/dev/rmt0"
    end
    // end script
```

### Example 2

```
/*
 * R/3 Script EXAMPLE
 *
 * YOU ARE FREE TO WRITE keywords and symbols UPPER or lower case
 * and in one line if you like
 */
ABAP: program = "SALARY" ABAP: ( PROGRAM="SALARY" VARIANT="SPECIAL" )

EXTERNAL-STEP :
 ( /* but take care external programs and parameters may be
    * case sensitive
    */
    program = "/usr/bin/archive.sh" parameter = "/dev/rmt0"
)
```

# **Installation Notes**

If not otherwise specified, these notes apply to UNIX and Windows NT.

- Entire System Server (UNIX and Windows NT), version 2.1.1 and above, is delivered with executables with or without SAP R/3 support.
  - Make sure that the module with SAP R/3 support is used.
  - For UNIX, this is "npretbr3" with "libnprr3.so".
  - For Windows NT, this is "npretbr3.exe" with "libnprr3.dll".
- The environment variable RFC\_INI must contain the full path name to the "saprfc.ini" file.
- The SAP R/3 library "librfc.so" (UNIX) or "librfc.dll" (Windows NT) must be callable by the Entire System Server (UNIX and Windows NT).

# **Logging on to Entire Operations**

This section tells you how to start an Entire Operations session. It introduces you to the Entire Operations Main Menu, explains the layout of the system screens and the functions they provide, and describes the online help facility.

This section covers the following topics:

- Entire Operations Logon Screen
- Logging on to an Operating System Server Node
- Entire Operations Main Menu
- Entire Operations Screens
- Online Technical Information
- Online Help Facility

# **Entire Operations Logon Screen**

The startup procedure of Entire Operations is defined specifically for your installation: ask your System administrator.

Having started Entire Operations, the Entire Operations Logon screen appears:

```
11/07/00
                                                           10:05:33
           EEEEEEEE NNN NN TT II RR RR LL
EE NN NN NN TT II RR RR LL
EE NN NNNN TT II RRRRRRR EEEEEE
TT II RR RR EE
            EEEEEEEE NNN NN TTTTTTT II RRRRRRR EEEEEEEE
         EE NN NN NN 11
EEEEEEE NN NNNN TT
EEEEEEEE NN NNN TT
     OOOOOO PPPPPP EEEEEE RRRRR AAAAAA TTTTTTT II OOOOOO NN
    OO OO PP PP EE RR RR AA AA TT II OO OO NNN NN SS
   OO OO PP PP EE
                      RR RR AA AA TT II OO OO NN N NN SS
  OO OO PPPPPP EEEEE RRRRR AAAAAA TT II OO OO NN NNN SSSSSS
 OO OO PP EE RR RR AA AA TT II OO OO NN NN
OOOOOO PP EEEEEE RR RR AA AA TT II OOOOOO NN NN SSSSSS
______
   Userid ===> BRY_
 Password ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help
              End
```

#### Note:

If you are already logged on to Natural Security and your user ID is defined in Entire Operations, the above Logon screen is bypassed and you are presented with the Main Menu. However, display of the Logon screen can be forced by an appropriate setting in the Entire Operations defaults.

If you wish to work in Entire Operations with a different user ID, you must change the STACK statement in your startup procedure to reflect the desired user ID (for example, STACK=(LOGON

SYSEOR;NATOP user ID). If in doubt, ask your system programmer.

The input fields on the Logon screen have the following meaning:

Field	Description
Userid	By default, your TP environment user ID appears in this field. You can enter Entire Operations under a different user ID by overtyping the default value. Any user ID entered in this field must be defined to Entire Operations. In addition, the User ID entered here must belong to the same owner as the User ID which appears here by default. For more information on the concept owner, see the subsection Owner in this documentation and the subsection User Maintenance in Section System Administrator Services of the Entire Operations Administration Documentation. If the User ID of your TP environment is not defined in Entire Operations, you cannot work with the product. The message is displayed EOR0009: INIT USER is unknown to Entire Operations.
Password	Enter the password associated with the user ID you entered in the Userid field. The password is meaningful if security systems such as RACF or ACF2 are used.  To enter hexadecimal passwords (for OS/390 and BS2000/OSD):  H'xx xx xx xx xx xx xx xx xx xx where xx xx xx xx is a hexadecimal string. The maximum length is 16 characters, or 8 bytes.

### If necessary:

- 1. Correct your user ID.
- 2. Enter your Password.
- 3. Press Enter to display the Entire Operations Main Menu.

If you do not enter your password correctly, it is prompted again in a window:

11/07/00	=======================================		10:06:53
EEEE	EEEE NNN NN 7	TTTTTTT II RRR	RRRRR EEEEEEEE
EE	NNNN NN	TT II RR	RR EE
EE	NN NN NN	TT II RR	RR EE
EEEEEE	NN NNNN	TT II RRRRRR	RR EEEEEE
EE	NN NNN T	Γ II RR RR	EE
EEEEEEEE	NN NN TT	II RR RR	EEEEEEE
00 00 PPPPPP 00 00 PP E	! ENTIRE OF ENTIRE SYSTEM!	EM SERVER Logon	! NN NN SS
			! NN NN SSSSS
	! Userid ===> BH ! Password ===>	RY	!======================================
Userid ===> BRY	1		!
Password ===>	! PF3 End		!
Enter-PF1PF2PF Help Er		5PF7PF8PF	+ 9PF10PF11PF12

- 1. Enter your correct Password.
- 2. Press Enter to display the Entire Operations Main Menu.

# Logging on to an Operating System Server - Node

### **Logon Process**

To log on to an operating system server on Mainframe, after you have logged on to Entire Operations:

- 1. Enter the direct command LOGON SERVER <node> in the command line.
- 2. Press Enter.
  - For information on nodes on Mainframes, press here.
  - For the description of nodes on UNIX, press here and
  - For details on nodes on Windows NT, press here.

### **Upper/Lower Case**

- In case of a logon to nodes on Mainframes, the input field entries are converted to upper case letters.
- For a logon to nodes on UNIX and Windows NT, the input field entries are not **not converted** and are used as is for the logon process. Therefore, make sure an exact spelling in upper/lower case.

### **Input Field Defaults**

The default user ID - and perhaps also the group or domain - for logging on to a node can be defined for any combination of Entire Operations users and nodes (see the Entire Operations Administration Documentation, section System Administrator Services, subsection User Definition). In this case, these values are displayed as defaults during the logon process.

They serve to simplify the logon process. If you want to logon with another User ID and / or group or domain, then these fields may simply be overwritten.

1. Press PF3 to return to the Main Menu.

#### **Nodes on Mainframes**

For nodes on Mainframes, the following window will appear:

```
16.02.00
   Main Menu
 1 Network and Job Maintenance
 2 Active Job Networks
 3 Calendar Maintenance
 4 Log Informati +-----+
 5 Symbol Tables!
 6 System Admini! !
7 Reports ! Entire Operations !
8 Import/Export! Node Logon !
9 Help ! !
           .
! Node ===> 148 F-MC
           ! OpSys ===> MVS/ESA
           ! User ID ===> SN
           ! Password ===>
Command => logon s ! PF3 End
Help End
                                       Owner Mail
```

- 1. Enter your correct Password.
- 2. Press Enter.

The Operating System Server Status screen appears:

The status **active** signifies that you logged on successfully and can now access the node.

#### Note:

The default user ID for logging on to a node can be defined for any combination of user and node (see the Entire Operations Administration Documentation, section System Administrator Services, subsection User Definition).

3. Press PF3 to return to the Main Menu.

### **Nodes on UNIX**

For nodes on UNIX, the following window will appear:

```
*** Entire Operations 3.2.1 *** 13:45

Main Menu User ID SN
16.02.00
                                                       13:45:58
Owner REQUEST
    Main Menu
  1 Network and Job Maintenance
  2 Active Job Networks
  3 Calendar Maintenance
  4 Log Informati +-----+
  5 Symbol Tables!
  6 System Admini!
  7 Reports ! Entire Operations ! 8 Import/Export! Node Logon !
  9 Help!
              ! Node ===> 510 npr_rsa1 ! ! OpSys ===> AIX !
               ! User ID ===> sn____
               ! Group ===> _____!
               ! Password ===>
Command => logon s !
Enter-PF1---PF2---P ! PF3 End
                                            ! PF10--PF11--PF12---
    Help E +----+
                                                    Owner Mail
```

- 1. Enter a Group. If this field is empty, the user's default UNIX group (from /etc/passwd) is used. Otherwise, this field must contain one of the UNIX groups, which is visible in the output of the UNIX groups command.
- 2. Enter your correct Password. Press Enter.

The Operating System Server Status screen appears.

3. Press PF3 to return to the Main Menu.

#### **Nodes on Windows NT**

For nodes on Windows NT, the following window will appear:

```
09.02.00 *** Entire Operations 3.2.1 *** 10:22
Owner REQUEST Main Menu User ID SN
                                                                10:22:50
09.02.00
     Main Menu
  1 Network and Job Maintenance
  2 Active Job Networks
  3 Calendar Maintenance
  4 Log Informati +-----+
  5 Symbol Tables!
  6 System Admini ! !
7 Reports ! Entire Operations !
8 Import/Export! Node Logon !
9 Help ! !
                 Node Logon !
!
! Node ===> 403 npr_nt_pcsn !
! OpSys ===> WIN/NT !
! User ID ===> sn
                 ! User ID ===> sn___
                 ! Domain ===> SAG-HQ_____!
                 ! Password ===>
Command => logon s !
                                                   ! PF10--PF11--PF12---
Enter-PF1---PF2---P ! PF3 End
     Help E +----- Owner Mail
```

1. Enter a domain. If this field is left blank, then the logon will be carried out without domain. Otherwise, this field must contain a valid domain.

The default User ID and domain can be used (see Entire Operations Administration Documentation) for combinations of Entire Operations users and operating system servers (nodes).

- 2. Enter the correct password.
- 3. Press Enter.
- 4. The Operating System Server Status screen appears.
- 5. Press PF3 to return to the Main Menu.

### SAP R/3 System

To be able to log on to an SAP R/3 system, you must have logged on to the corresponding ENTIRE System Server node with LOGON SERVER.

1. Enter the direct command LOGON R3 < node> in the command line. Press Enter.

The following window opens:

```
11.08.00
                  *** Entire Operations 3.2.1 ***
Owner EXAMPLE Main Menu
                                           User ID VMU
       !
                                                 ! ent (V132)
! ment (V141)
  1 Net!
              ENTIRE Operations
  2 Act!
  3 Cal !
                      SAP R/3 Logon
  4 Log!
  5 Sym ! Node ===> 403 npr_nt_pcsn
  6 Sys! Destination ===> ____
  7 Rep ! Client ===> ____
  8 Imp ! R/3 User ID ===> ____
  9 Hel! Password ===>
       ! PF1 Help PF3 End
        +-----
Command => logon r3 403_
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help
                                                   Owner Mail
```

- 2. Enter the Destination, the Client and your R/3 User ID.
- 3. Enter the correct Password. Press Enter.

# **Entire Operations Main Menu**

Once you have logged on to Entire Operations, the Main Menu appears. Your menu configuration may vary from the example below, depending on the authorizations in your user profile.

This example of the Main Menu displays all possible options:

```
11.07.00
                    *** Entire Operations 3.2.1 ***
                                                               10:48:06
                                                        User ID BRY
Owner EXAMPLE
                         Main Menu
 ______
     Main Menu
                                         DC Solutions
  1 Network and Job Maintenance 20 Entire Event Management (V132)
2 Active Job Networks 21 Entire Output Management (V134)
  3 Calendar Maintenance
  4 Log Information
  5 Symbol Tables
  6 System Administrator Services
  7 Reports
                                         Applications
  8 Import/Export
  9 Help
                                    30 sysmain
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help
               End
                                                            Owner Mail
```

### **Options on the Main Menu**

You can select the following options on the Main Menu:

#### Left Side - Main Menu

#### 1. Network and Job Maintenance:

Define and maintain original job network definitions on the master data base, including job definitions, JCL, user routines, input conditions, end-of-job handling, resources, schedule tables and text descriptions;

#### 2. Active Job Networks:

Maintain active data base: this includes active networks and jobs, and all current definitions for a specific job run;

#### 3. Calendar Maintenance:

Maintain original calendar definitions on the master data base;

#### 4. Log Information:

Display different types of system information according to selection criteria;

#### 5. Symbol Tables:

Maintain original symbol table definitions on the master data base;

#### 6. System Administrator Services:

Maintain the Entire Operations environment, this includes user authorizations and maintaining the Entire Operations Monitor, available resources, nodes, system defaults, mailboxes, etc.;

#### 7. Reports:

Generate different types of reports, including workload forecasting on the basis of resources;

#### 8. Import/Export:

Log on to the Import/Export Utility. For further information, see Section Import/Export Utility.

#### 9. **Help:**

Display the online help facility.

An option is not displayed on your Main Menu (and is therefore not selectable) if your user profile does not contain the appropriate authorization.

#### **Right Side - DC Solutions**

If other Softwae AG Data Center products are installed, they can be called up directly from Entire Operations.

#### **Right Side - Applications**

If another application is defined in the menu, the name is shown here. For further information, see the subsection User Application in Main Menu in the Entire Operations Administration Documentation.

#### Special PF Keys: Main Menu

You can perform the following functions from the Main Menu using these PF keys:

Key	Name	Function	more
PF11	Owner	Select a different owner from a selection list.	-
PF12	Mail	Display Mailbox messages and requests.	Mailboxes

### **Selecting Options**

#### To select an option

• Enter the identifying number in the Command line and press Enter.

or

 Alternatively, you can position the cursor on the line in the Main Menu where the option appears and press Enter.

Use one of these methods, as well, for the submenus, such as System Administration, Reports and Cross References.

The sections Network Maintenance to Reporting describe each menu option in detail, except the options System Administration Services and Import/Export. The Help option is described in the subsection Online Help Facility of the present section.

# **Entire Operations Screens**

All Entire Operations screens have a similar layout. Some data appear on every screen, other data are screen-dependent.

The structure of system screens can be subdivided into several subsections:

#### • Headings section

The top line contains fields with the current date and time, and a system identifier (Entire Operations). Subsequent lines in this section contain control fields with information such as current owner, network name and job name, as well as a screen name;

#### • Main information section

Contains the requested information on the selected item and line command input fields (if applicable);

#### Command section

Contains a list of available line commands and short descriptions, a direct command input field and a list of available PF keys and their functions.

Some system screens may consist of more than one page. You can use the PF7 (Up) and PF8 (Down) keys to scroll information **up** and **down**. On some screens, you can use the PF10 (Left) and PF11 (Right) keys to scroll **left** and **right**, respectively. A line of asterisks \*\*\*\* with the message Top of data or Bottom of data tells you whether you are on the first or last screen page.

The following figure illustrates a typical Entire Operations screen - the Job Maintenance screen in the Network and Job Maintenance facility:

```
11.07.00
                      *** Entire Operations 3.2.1 ***
                                                                11:32:32
                                                 Network ACTNW-T03
Owner DWI
                         Job Maintenance
         Type Description
                                       File or Library
                                                                  Member
    ACTNW-JB01 JOB Activate single NAT DWI.SYSF.JCL ACTNW-JB02 JOB Activate single MAC DWI.SYSF.JCL ACTNW-JB03 JOB Activate single JOB DWI.SYSF.JCL
                                                                  NOPJB01
                                                                  NOPJB01
                                                                  NOPJB01
    ACTNW-JB04 JOB Activate single DUM DWI.SYSF.JCL
                                                                  NOPJB01
A Dependencies C Copy D Delete E Edit I Input Conditions L Resources
M Modify O EOJ Handling P Prose R Activate S Scheduling Parms U User Log
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help Add End Do Undo Up
                                          Down
                                                                   Menu
```

```
Headings Section Command Section

Main Information Section Line Commands
```

Line commands are screen-dependent and are described for each system screen in Sections Network Maintenance to Reporting. Direct commands can be entered on any screen or window which displays the direct command input field. All available direct commands are described in detail in Section Direct Commands.

Additional ease of use is provided by the following features:

- Some standard functions are assigned to PF keys;
- Use of selection windows and wildcard symbol;
- Confirmation window when deleting items.

These features are described in the following subsections.

# **Using PF Keys**

Some frequently used functions in Entire Operations are assigned to PF keys. A list of PF keys and associated functions is displayed in the last two lines of any system screen. Some PF keys may be assigned to different functions on different screens, but there are some functions which are always assigned to the same PF key:

Key	Name	Function
PF1	Help	Enter the Entire Operations online help system.
PF2	Add	Add a definition of the selected object type.
PF3	End	Return to previous screen.
PF5	Save	Save changes made to data.
PF7	Up	Scroll displayed data up (backwards).
PF8	Down	Scroll displayed data down (forward).
PF10	Left	Scroll displayed data to the left.
PF11	Right	Scroll displayed data to the right.
PF12	Menu	Return to Main Menu.

On some screens, object-specific functions may be assigned to PF keys. These are described in the appropriate subsections of this documentation. You can only use a PF key if it appears on the system screen together with the short descriptive text.

#### **Selection Windows**

When you are required to specify an existing item in an input field of an Entire Operations definition screen or window:

1. Enter an asterisk \* as a 'wildcard' in the input field.

To display a more specialized list, enter a prefix followed by an asterisk. For example, NET\* displays a list of all items beginning with NET.

- 2. Press Enter.
- 3. A window opens with a list of selectable items.
- 4. If the desired item is not listed in this window, you can scroll toward the bottom of the list by pressing Enter or PF8 (Down). Press PF7 (Up) to scroll back toward the top of the list.
- 5. Select an item by marking it with any character.
- 6. Press Enter.

The window closes and the name of the selected item is written to the appropriate input field.

# **Confirmation Window when Deleting Items**

When you wish to delete an item from Entire Operations:

- 1. Enter the line command **D**.
- 2. A confirmation window opens.
- 3. Confirm deletion by entering the name of the item or the letter Y (yes).
- 4. The item is deleted when you press Enter.

### **Priority of Command Processing**

Commands and data are processing according to the following priority:

- 1. Command line
- 2. PF keys
- 3. Data entered in input fields

#### **Date and Time Formats**

The current date and time appears in the top line of nearly every system screen. The format of the date and time is installation-specific and is selected by the system administrator.

Possible date formats are:

MM/DD/YY	American format
DD/MM/YY	European format
DD.MM.YY	German format
YY-MM-DD	International format
YYYYMMDD	8-digit date

When entering a date, you must adhere to the format chosen for your installation (see the date format in the top line of any system screen).

#### Note:

All example screens in this documentation use the German date format. The date may appear in a different format at your installation.

The year is displayed in 2-digit form only on the screens. Internally, 4-digits are used. For 2-digit date entries you make, the century is calculated +/- 50 years in a sliding window.

#### Example:

Current date 21.07.2000

Entry	<b>Complete Date</b>
31.12.99	31.12.1999
01.02.12	01.02.2012
20.07.48	20.07.2048
22.07.48	22.07.1948

The time of day appears and must be specified in one of the following formats:

HH:MM:SS	hours, minutes, seconds
HH:MM	hours, minutes

The hour range is 0 to 23. Please see the top line of any system screen for the format used at your installation.

### **Error Messages**

All error messages are displayed in the first screen or window line. You can correct the error on the system screen and continue, or leave the screen with PF3 (End).

For more details, see Section Messages and Codes.

### **Online Technical Information**

Certain user-specific technical information is available online. When you issue the TECH direct command in the command line, a technical information window similar to the following opens with information such as the version number and most recent update of Entire Operations, the Software AG Editor version number, operating system and TP monitor used, etc.

11.0°			*** ]		erations in Menu	3.2.1 ***	1 User ID	2:00:35 BRY
	Main M	•	ENTIRE OPERA			00-07-01	 ! !	
1			Uj				!	V132)
2			Editor					(V133)
3			ENTIRE SYSTE				!	, ,
4							!	
5	Symbol						!	
6	-		Program	MENU			!	
7	Report	!	Map				!	
8	Import	!	Library	EOR210	EOR 210	Development	!	
9	Help		_			_	!	
	_	!	User - Id	BRY	Boykin R	eynolds	!	
		!	Date / Time	07/11/00	12:00:48	_	!	
		!	Terminal	DAEFTC26	VIDEO		!	
		!	TP/OP System	COMPLETE	DAEF MVS	/ESA SP5.1.0	JES2 SP 5 !	
		!					!	
Comma	and =>	!	Enter End				!	_
Enter	-PF1	+-					+	-PF12
	Help		End				Owner	Mail

#### Note:

The Update field can contain an update identifie, which is the sequence number of the current update tape that has been sent to the customer by Software AG. This field is empty, if for a released version no update has yet been installed.

# **Online Help Facility**

Entire Operations provides a comprehensive online help facility to help you select the appropriate function, command or item from any system screen.

Help texts are available on two levels:

- Screen Level
- Field Level

These are explained in the following subsections.

#### Screen Level

The hierarchy of the help screens reflects the hierarchy of Entire Operations system screens. This means that you can invoke the online help facility from any system screen and you immediately see the help text defined for that screen. You can then return to the system screen or ask for more help.

The easiest way to invoke online help for any system screen is to simply press PF1 (Help). Alternatively, you can enter the direct command HELP in the Command => line of any screen and press Enter. From Main Menu, there is also a third alternative: selecting the Help option.

### **Invoking Help from the Main Menu**

### To enter the online help facility at the top end of the hierarchy

- 1. Press PF1 (Help) on the Main Menu.
- 2. The main Entire Operations Help Menu appears with a list of selectable items and a short explanation of their meaning:

```
11.07.00
                                      Entire Operations 3.2.1 HELP
                                                                                                               12:01:05
                             ----- Table of contents
                                                                                                                н00000
                     ENTIRE OPERATIONS HELP
  Please select one of the following items to get detailed information:
              Help about Help - The Entire Operations Help System
Networks and Jobs - Maintenance of Networks and Jobs
Calendars - Definition and usage of Calendars
Active Queue - Display and modification of Active Jobs
Symbol Tables - Symbol table editing
Logging - Selection and display of Log Information
Dynamic JCL - How to work with dynamic JCL
System - System Administrator Utilities
Active Conditions - Maintenance of active Conditions
                                                                                                              2 The Maps
                                                                                                                                                  - Functionality of Entire Operations Maps
              Active Conditions - Maintenance of active Conditions
       10
                             - The Entire Operations Editor
- Entire Operations Reporting Facility
               Reports
              Direct Commands - How to use the Command Line
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                  Ouit End
```

### To select an item

- 1. Enter its number in the Option ==> field at the top of the menu.
- 2. Press Enter.
- 3. The first Help screen for the selected item appears (example):

```
11.07.00
                       Entire Operations 3.2.1 HELP
                                                                    12:02:44
                  ----- Calendar Maintenance ------
                                                                      H13000
Option ==>
 Function
   This screen displays a list of all defined calendars.
   Protected (system) calendars are marked with *.
 Line Commands ( * Enter letter for more help)
       Copy of a calendar.
       Deletion of a calendar.
   D
 * L
      List (display) of a calendar (modification not possible).
  * M Modification of a calendar.
      Where used.
       Shows the job networks, for which the calendar is defined.
 New calendars can be added with * PF2.
 more ...
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Quit End
                                               Forw
```

- 4. Help texts may consist of one or more screen pages. If a help text consists of more pages, you are notified by the prompt more ... at the bottom of the screen. Press PF8 (Forw) to display more help and press PF7 (Up) to return to the previous help screen.
- 5. Some Help screens provide direct access to help texts on a related item or on another level in the Help screen hierarchy. You can enter the number or letter for the desired item in the Option field at the top of the Help screen and press Enter to display the associated help text. On Help screens which list several items, an asterisk \* marks the items on which more help is directly available.

#### **Invoking Help from a System Screen**

### To invoke a screen help

- 1. Press PF1 (Help) from any system screen.
- 2. A help text appears with general information about the screen from which you invoked the online help (example):

```
11.07.00
                       Entire Operations 3.2.1 HELP
                                                                   12:03:10
                 ----- Network Maintenance -----
                                                                     H11000
Option ==>
 Function
   A list of the defined or active networks.
   Various functions are available via line commands.
   New networks can be added with PF2 (appl. to master networks only)
 The fields on the map
              For the line command.
 Cmd
            Number of currently active runs for this network.
 Run
 Owner
            The owner of the network.
 Network
            The network name.
             The default node for the jobs in the network.
 Description A short explanation.
             A bigger description is available with the prose facility.
 Note: Character 'L' (Loop) is displayed between column Cmd and
       column Run if a definition loop was detected in the network.
 more ...
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Quit End
                                              Forw
```

3. Some Help screens provide direct access to help texts on a related item or on another level in the Help screen hierarchy. Proceed as described in [5] on the preceding page.

#### Field Level

On the field level, you can invoke a window containing a help text for the field or a selection list:

#### **Help Text**

### To invoke a field help text from a system screen

- 1. Enter a question mark? in the selected input field.
- 2. Press Enter.
- 3. A window opens with an explanation of the field:

```
11.07.00 *** Entire Operations 3.2.1 *** 12:04:11
Owner EXAMPLE Job Maintenance Network E60-FLOW
                                             12:04:11
                  Master Job Definition
                                                 !
                       +----+
 Symbol Table
 ! Execution Node ==> 146 MVS/ES ! The Symbol Table contains the Variables !
 ! Special Type ==> _ ! for the Dynamic JCL Generation. !
 ! Restartable ==> _
                      ! It can be maintained manually or be
 ! ! modified by programs.
! JCL Location ==> NAT !
 ! JCL Node ==> 148 MVS/ES ! Enter * to select a Symbol Table. !
 ! File/NatLib ==> EOR-T210__ +-----+
 ! Enter-PF1---PF2--PF3--PF4---PF5---PF6---PF7---PF8-------PF10---PF12- !
 ! Help Add End Edit Save Spec Symb Impo Copy Menu ! g
 +----+
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
   Help Add End Save Up Down
```

#### **Selection Window**

See the subsection Selection Windows.

#### **PF Keys: Online Help**

The following PF keys are available in the online help facility:

Key	Name	Function
PF2	Quit	Leave the online help facility.
PF3	End	Return to previous screen.
PF7	Back	Scroll up (backwards).
PF8	Forw	Scroll down (forward).

# **Network Maintenance**

This section tells you how to define and maintain job networks. For information on all definitions made at the job and event level, see Section Job Maintenance.

It covers the following topics:

- How to Invoke the Network Maintenance Facility
- Selecting Range of Networks to be Listed
- Adding a Job Network Definition
- Modifying a Job Network Definition
- Network Defaults: Operating System-Specific Entries
- Network Defaults for BS2000/OSD
- Network Defaults for OS/390
- Network Defaults for UNIX and Windows NT
- Network Defaults for SAP R/3
- Applying Network Defaults to Jobs
- Specifying Recipients for Network Messages
- Listing Active Jobs for a Network
- Copying a Job Network Definition
- Deleting a Job Network
- Displaying Overview of Job Flow within a Network
- Authorizing Other Users to Access a Network
- Checking for a Loop in a Job Network
- Listing Jobs
- Deactivating Active Jobs
- Creating Online Documentation for a Network
- Activating a Job Network Manually
- Display Network Accounting Data
- Symbol Prompting during Manual Activation
- Symbol Prompting User Routine

# How to Invoke the Network Maintenance Facility

### To invoke the Network and Job Maintenance facility

• Select the Network and Job Maintenance option on the Main Menu.

When you select the Network and Job Maintenance option on the Main Menu, the following screen appears:

```
11.07.00
                        *** Entire Operations 3.2.1 ***
                                                                       10:35:44
 Owner EXAMPLE
                               Network Maintenance
Selection OR_
                 Network Node Description
 Cmd #Run Owner
          *_____ *____
       EXAMPLE B60-FLOW 31 Job Flow, BS2000
EXAMPLE B60-FLOW38 38 Job Flow, BS2000
2 EXAMPLE E01-CONTI 148 Completion-Codes, Job Duration
EXAMPLE E02-IOC-01 148 I/O Conditions without events
EXAMPLE E03-IOC-02 148 I/O Conditions with code events
_ L
        EXAMPLE E04-IOC-03 148 I/O Conditions with string events
        EXAMPLE E05-IOC-04 148 I/O Conditions with user routine event
        EXAMPLE E10-PAR-01 148 Parallel & sequential job execution
       1 EXAMPLE E20-DYN-01 146 Dynamic JCL generation
       11 EXAMPLE E40-REC-01 146 Cause a recovery situation
        3 EXAMPLE E40-REC-02 146 Recovery and Reschedule
 A Active C Copy D Delete F Flow G Grant H Check L List Jobs M Modify
 N Deact P Prose R Activate S Schedule T Acct W Display Schedule X History
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Add
                  End
                               Save
                                           Uр
                                                                     NxtSt Menu
                                                  Down
```

When one or more job networks are defined for the owner, they appear in the main information section of this screen.

#### **Column Headings: Network Maintenance**

The following table explains the column headings for the data listed on the Network Maintenance screen:

Column	Description			
Cmd	One-character line command input field. Possible values are listed in the common of the screen (see also the subsection Line Commands: Network Maintenance			
	Note:	The letter L (loop) appears between the Cmd and #Run columns, if a loop was found during a loop test for the corresponding network. For further information, see the field description for Loop exists.		
#Run	Number of currently active runs for the corresponding network.			
Owner	Owner name of the network; the first line contains the prefix specification used to obtain the list of networks: enter an asterisk * and press Enter to list networks belonging to the current owner (see screen header) and networks of all other owners for which you are authorized, or enter ABC* and press Enter to list networks belonging to all owners whose names begin with ABC.			
Network	User-defined network name; the first line contains the prefix specification used to obtain the list of networks: enter an asterisk * to list all networks belonging to the specified owners, or enter ABC* to list networks whose names begin with ABC.			
Node	Default execution node ID for the jobs in the network.			
Description	Short description of the network.			

For information on how to use the Selection field, see the subsection Selecting Range of Networks to be Listed.

### **Special PF Keys: Network Maintenance**

You can perform the following functions from the Network Maintenance screen using these PF keys:

Key	Name	Function
PF2	Add	Add a network definition.
PF11	NxtSt	Display a system-wide list of all planned job and network activations.

#### **Line Commands: Network Maintenance**

You can perform several functions on any network listed on the Network Maintenance screen using the following line commands:

Cmd	Description
A	List all active jobs for the network. Use this command to maintain active jobs.
С	Copy all definitions of the selected network for a new network.
D	Delete the selected network, including all jobs and all other definitions for this network.
F	Display overview of job flow within network.
G	Grant other users access to this network.
Н	Check for loops in the network.
L	List all jobs defined for this network. Use this command for Job Maintenance.
M	Modify selected network definition.
N	Deactivate active jobs, selectable by dates.
P	Prose. Invoke the Entire Operations Editor to write an online text description for the selected network.
R	Activate the selected network manually.
S	Define a schedule for the network
Т	Display network accounting data. See also here.
W	Display defined schedule for the selected network
X	Display execution history (previous network runs)

The following subsections describe in detail the functions you can perform on each job network using line commands and PF keys.

# **Selecting Range of Networks to be Listed**

You can specify the range of networks to be listed by entering one or more of the following values in the Selection field on the Network Maintenance screen and pressing Enter:

Value	Description	
A	Only networks with at least one active run are listed.	
G	Granted networks are listed for Owner selected on Network Maintenance screen (excluding current owner).	
О	Networks of current owner are listed. Owner selected on Network Maintenance screen has no effect.	
R	Number of active runs is shown in the #Run column. Using this option could increase database access.	

You **must** specify at least either **O** or **G**. You **can** specify both **O** and **G** together. The default value is OR.

If you enter a question mark? in the Selection field and press Enter, the following selection window opens:

```
11.07.00
                     *** Entire Operations 3.2.1 ***
                                                              10:35:44
                         Network Maintenance
Owner EXAMPLE
Selection ?R_
Cmd #Run Ow !
                                         . !
      *-!
                 Network Selection
      9 EX !
                                        ! 2000
      EX ! O Networks of Owner ! 2000

1 EX ! G Granted Networks ! odes, Job Duration
EX ! A Active Networks only ! ns without events
                                        ! odes, Job Duration
       EX ! R with number active runs ! ns with code events
        EX!
                                         ! ns with string events
        EX ! Multiple selections possible. ! ns with user routine event
        EX!
                                         ! equential job execution
        EX ! Select ==> OR_
                                         ! generation
       6 EX +----+ very situation
        EXAMPLE E40-REC-02 146 Recovery and Reschedule
 A Active C Copy D Delete F Flow G Grant H Check L List Jobs M Modify
 N Deact P Prose R Activate S Schedule T Acct W Display Schedule X History
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help Add End
                          Save Up Down
                                                          NxtSt Menu
```

Enter one or more of the above values in the Select field and press Enter to display the selected networks.

# Adding a Job Network Definition

To add a new network definition

- 1. Press PF2 (Add) from the Network Maintenance screen.
- 2. The Network Addition window opens:

11.07.00 *** Entire Operations 3.2.1 ***  Owner EXAMPLE Network Maintenance  Selection OR	11:15:44
! Network Addition	! !
! Network ===> Owner ===> EXAMP ! Description ===>	LE!
! Loop existing =	==> !
! Default Values for the Jobs ! Execution Node ===> 148 MVS/ESA Symbol Table ===> ! JCL Node ===> 148 MVS/ESA	! ! !
! JCL Location ===> Sym.Table Activation Mode = !	==> _ !
! File ===>	!
! VolSer ===> ! Password ===>	! !
!PF1PF3PF5PF6PF7PF8PF9PF10PF11P	F12 ! **
! Help End Save BS2 Symb SP-UR DfJb Copy MsgRe M	enu!
Command =>	
Enter-PF1PF2PF3PF4PF5PF6PF7PF8PF9PF10PF Help Add End Save Up Down Nx	11PF12 tSt Menu

3. Define the network by entering values for the fields (see Field Descriptions: Network Addition/Modification) and using the PF keys as described below.

#### Special PF Keys: Network Addition/Modification

You can perform the following functions using these PF keys in the Network Addition/Modification window:

Key	Name	Function
PF6	BS2	Special definitions for BS2000/OSD.
PF7	Symb	Edit the specified symbol table.
PF8	SP-UR	Define a symbol prompt user routine.
PF9	DfJb	Apply network defaults to jobs.
PF10	Сору	Copy a network definition.
PF11	MsgRe	Specify message recipients for the network.

- 1. Press PF5 (Save) to save the network definition.
- 2. Press PF3 (Exit) to return to the Network Maintenance screen.
- 3. The new network is now listed on the Network Maintenance screen.

### Field Descriptions: Network Addition/Modification

The input fields of the Network Addition/Modification window are described in the following table:

Field	Description			
Network	Network name. Together with owner name, uniquely identifies the network in the master database.			
Owner	Owner name.			
Description	Short description of network. This text appears in the list of networks on the Network Maintenance screen. A longer description of the network can be added using the Editor (see the subsection Creating Online Documentation for a Network).			
Loop exists	Y (=loop exists) appears here: if a loop has been found in the network while linking network jobs via their input and output conditions or while defining input and output conditions of a job.  N (=loop does not exist) appears here: if no loop has been found in the network, or if no loop test has yet been performed, for example, with the line command H.			
		_	r this heading serve to specify default values for ch default value specified here can be overridden at the	
Execution Node	Default node ID on which jobs within this network are submitted. This value can be modified here or overridden at the job level. To list the possible nodes, type an asterisk * here and press Enter. The operating system type appears after a valid node number. To display the field help, type a question mark? here and press Enter.			
JCL Node	Node on which JCL can be accessed. The default is the same as for the execution node. The operating system type appears after a valid node number.			
JCL Location	Type of physical storage for the JCL. Possible values:			
	(blank)		None (No JCL required)	
	BS2	(BS2000/OSD)	SAM or ISAM file	
JCL Location	EXE	(Win NT)	Executable program running in the background. The defined program must not wait for the user to enter data.	
	LIB	(OS/390)	Librarian	
	LMS	(BS2000/OSD)	LMS library	
	NAT		Natural source	
	PDS	(OS/390)	Partitioned data set	
JCL Location	PRC	(BS2000/OSD)	Callable procedure	
(cont.)	RDR	(VSE/ESA)	VSE/ESA Reader Queue, for STC	
	TXT	(UNIX, Win NT)	Text file	
	VSE/ESA	(VSE/ESA)	VSE/ESA Sublib	
	The default is set in the job definition and can be overridden here.			

Symbol Table	Default symbol table for those jobs in the network that use the dynamic JCL generation facility. Can be overridden at the job level and is therefore optional here. Enter an asterisk * and press Enter to display a selection list of available symbol tables. The selected symbol table can be edited using <pf7> (Symb).</pf7>		
Sym.Table	A	During the network activation. No symbol prompting is possible.	
Activation Mode	X	After schedule extraction. Symbol prompting can be used for scheduled networks. This is the default.	
Dataset	Name of the file or Natural library according to the value of the JCL Location field.		
Volser	Volume serial number of data set (if data set is not cataloged).		
Password	Password if the file or library specified in the Dataset field is password protected.		

# **Modifying a Job Network Definition**

- To modify an existing network definition
  - 1. Type M in the line command field of the selected network on the Network Maintenance screen.
  - 2. Press Enter.
  - 3. The Network Modification window opens with the current values for the network.
  - 4. Modify any value.
  - 5. Press PF9 (DfJb) to apply network defaults to jobs.
  - 6. Press PF5 (Save) to save all changes.
  - 7. Press PF3 (Exit) to return to the Network Maintenance screen.

# **Network Defaults: Operating System-Specific Entries**

- To view operating system-specific default entries for one or more operating systems
  - 1. Press PF6 (Spec) in the Network Modification screen.

The following window opens:

```
12.08.00 *** Entire Operations 3.2.1 ***
Owner EXAMPLE Master Symbol Table EXAM-ST1
Network B60-FLOW
                                                    10:28:43
 !
                      Network Modification
 ! Network ===> B60-FLOW__ Owner ===> EXAMPLE !
! Description ===> Job Flow, BS2000____ !
                                    Loop existing ===> N !
 ! Default Values for the Jobs
   Execution Node +----- !
 !
    JCL Node !
                                                !
 !
    JCL Location ! Please select the Operating System ! e ===> X !
 !
   !
 !
                                                !
 !
                                                ! --PF12-- !
 ! --PF1----PF3--- !
 ! Help End ! or Environment
                                                ! Menu !
C Copy D Delete ! _ SAP R/3
Enter-PF1---PF2---PF3 !
                                                ! -PF11--PF12---
    Help Add End +----+
```

2. Choose an entry.

The various platform entries are described below.

### **Network Defaults for BS2000/OSD**

- To define network defaults for BS2000/OSD:
  - 1. Press PF6 (Spec) from the Network Modification screen and select operating system BS2000/OSD.
  - 2. The Network Defaults (BS2000/OSD) window opens:

#### 3. Enter the network defaults for BS2000/OSD in the fields provided:

Field	Description
Default User ID	This user ID is a default for all objects of this job network or job which are linked to a user ID.
JCL User ID	If this field is not empty, the JCL is loaded with the rights of this BS2000/OSD user ID. It can be overwritten with specific definitions.  TSOS may only be defined if the user itself has logged on under TSOS.  Default: The user ID from the fully qualified file name.  If this field is left empty in a job definition, then the Default User ID will be inserted during the activation of the job.
Job Class	This job class is a default for all jobs in the network. It can be overridden by specific definitions.
Account Number	This account number is a default for the Submit user ID defined for the job network. It can be overridden by specific definitions.
Submit User ID	The Entire Operations Monitor starts jobs in BS2000/OSD under this user ID. In the network definition, this is a default value for the jobs.  If this field is left empty in a job definition, then the Default User ID is inserted during the activation of the job.
Sysout User ID	This is the user ID under which internal SYSOUT files are created by Entire Operations. If you do not enter an ID here, the Submit user ID is used.
Sysout Cat ID	This is the catalog ID under which internal SYSOUT files are created by Entire Operations. This field is meaningful only if a SYSOUT user ID different from the submit user ID is used.

### **Network Defaults for OS/390**

### To define network defaults for OS/390

- 1. Press PF6 (Spec) from the Network Modification screen and select operating system OS/390.
- 2. The Network Defaults (OS/390) window opens:

```
*** Entire Operations 3.2.1 ***
 12.08.00
                                       11:31:04
Owner EXAMPLE
               Network Maintenance
Selection OR___
+----
                Network Modification
    Network Defaults (MVS)
   ===> E60-FLOW
! Description ===> Job Flow, MVS
! JCL Node ===> 140
                            Owner ===> EXAMPLE !
    JCL Node ===> 148 Execution Node ===> 146
   ! Default Values for the Jobs
     Submit User ID ===> ___
 ! ! --PF1----PF3------!! ! **
  ! Help End Save
 Command => _____ ! SAP R/3
Enter-PF1---PF2---PF3 !
   Help Add End +----- NxtSt Menu
```

3. Enter the submit user ID for OS/390:

Field	Description
Submit User ID	The Entire Operations Monitor starts jobs in OS/390 under this user ID. You can only define this user ID if you have logged on to the executing node with the same user ID.  Default: If this field is empty, the user ID of the last modification is taken as submit user ID.

## **Network Defaults for UNIX and Windows NT**

### To define network defaults for UNIX and Windows NT

- 1. Press PF6 (Spec) from the Network Modification screen and select operating systems UNIX, Windows NT.
- 2. The Network Defaults (UNIX, Windows NT) window opens:

```
.6.02.00 *** Entire Operations 3.2.1 ***
Owner SN Network Maintenance
16.02.00
                                                   13:55:06
Sele +-----+
          Network Defaults (UNIX, Windows NT)
    !
    ! Network ===> WNT403A
   ! Network ===> WNT403A Owner ===> SN
! Description ===> Test pcsn
! JCL Node ===> 403 Execution Node ===> 403
                                       Owner ===> SN
 !
    !
 ! ! Default Values for the Jobs
 ! ! JCL User ID ===> sn___
         JCL Group ===> SAG-HQ_____
 !!
 !!!
 ! ! Submit User ID ===> sn___
 ! ! Submit Group ===> SAG-HQ____
 ! ! --PF1-----PF3--------!
       Help End Save
Command => ____ ! __ SAP R/3
Enter-PF1---PF2---PF3 !
                                               ! -PF11--PF12---
    Help Add End +----- NxtSt Menu
```

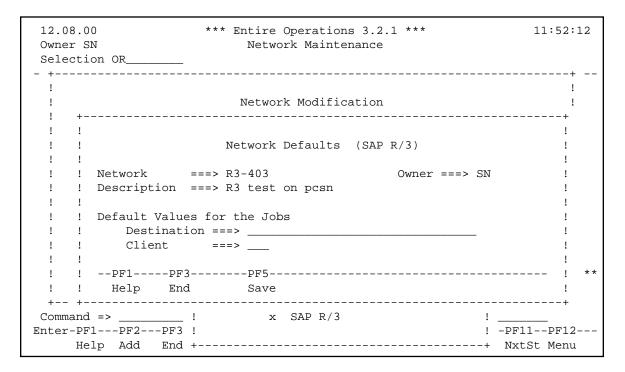
3. Enter the network defaults for UNIX and Windows NT in the fields:

Field	Description
JCL User ID With the authorization of this user ID, the Entire Operations Monitor loads the JCL of type TXT.	
JCL Group (optional, UNIX only)	If this field is left blank, the standard group of the UNIX user ID is used as defined under /etc/passwd.  Otherwise, this field must contain one of the groups issued by the UNIX command groups.
Submit User ID	With the authorization of this user ID, the Entire Operations Monitor starts the script or the executable program.
Submit Group (optional, UNIX only)	If this field is left blank, the standard group of the UNIX user ID is used as defined under /etc/passwd.  Otherwise, this field must contain one of the groups issued by the UNIX command groups.

## **Network Defaults for SAP R/3**

### To define network defaults for SAP R/3

- 1. Press PF6 (Spec) from the Network Modification screen and select the environment SAP R/3.
- 2. The Network Defaults (SAP R/3) window opens:



3. Enter the network defaults for SAP R/3 in the fields:

Field	Description
Destination	SAP R/3 Destination
Client	SAP R/3 Client

# **Applying Network Defaults to Jobs**

- To apply any defaults modified in the network definition to all jobs in the network
  - Press **PF9** (DfJb) on the Network Modification screen.

The following window opens:

```
12.0 !
Owne! Network ADMIN
                                      Owner EXAMPLE
       Application of Network Defaults to Jobs
Sele !
                                                 !
 +--!
                                   Cmd old new !
                   old
     Cmd
   !
                          new
                                   ! _ Symbol Table
                          ADMIN
   !
     _ JCL User ID
   ! _ JCL
          Group
                                    _ JCL Loc
   ! _ Submit User ID
                                                  !
   ! _ Submit Group
                                                  !
 !
   ! _ BS2000 Def User ID
                                                  1
  ! _ BS2000 Job Class
                                                  !
  ! _ BS2000 Acct Number
   ! _ Sysout User ID
   ! _ Sysout Cat ID
     _ Modifying User (all)
                          VMU
     _ File Name
      old
     new
 +--! S only if same old A all
Comm ! -----
              PF3 End PF6 R/3
Enter ! PF1 Help
   +----+
```

All input fields on this screen are described in detail in the subsection Field Descriptions: Network Addition/Modification.

Whether or not the new value replaces the old value is determined by a line command entered in the line command input field in the window (column headed Cmd). This allows you to distinguish between those jobs which have the defaults set for the network and those jobs for which specific values have been defined.

### **Line Commands: Application of Network Defaults to Jobs**

The line commands available are:

Cmd	Description
S	Replace value only if the old value matches the old default. Specific definitions made at the job level remain unchanged.
A	Replace all values regardless of whether they are default settings or specific definitions.

If you leave a line command field blank, no modifications are made.

#### Note:

For each job, for which definitions have been changed by the above function, the following items are logged:

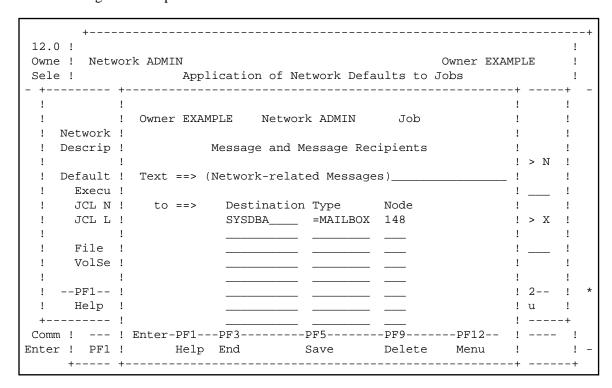
- 1. name of definition changed ?????
- 2. new value ?????

# **Specifying Recipients for Network Messages**

This function enables you to define a message that is sent to one or more users when a specified event occurs. This is especially useful for sending information about the abnormal end of a job.

- To define message recipients, press PF11 (MsgRe) from the Network Addition/ Modification window
- Press **PF9** (DfJb) on the Network Modification screen.

The following window opens:



### Field Descriptions: Message and Message Receivers

The input fields of the Message and Message Receivers window are described in the following table:

Field	Description						
Destination	Enter CONSOLE to send the message to the operator console. For Con-nect: enter a valid Con-nect user ID. In OS/390 and VSE/ESA: enter the user ID of a TP system user. In BS2000/OSD: enter a terminal name. In UNIX: enter a UNIX user ID valid in the UNIX environment of the addressed server. This is automatically converted to lower case. The message is sent with the UNIX mail function.						
	This field can also contain a symbol. This allows you to define a longer destination as well, for example an e-mail address.  If e-mail addresses are to be defined (in an EBCDIC character set) on the mainframe, the string "(a)" must be used instead of "@".						
Message: Destination Type	BS2000/OSD: The processor name related to the BS2000/OSD terminal name to be specified in the "Destination" column. OS/390: =COMPLET explicitly to a Com-plete user =TSO explicitly to a TSO user all operating systems: =MAILBOX sends the message to the mailbox specified in "Destination".						
Node	Enter the Entire System Server node, to which the message is to be sent. Not necessary for messages to Con-nect. Default: the execution node of the job.						

#### **Events**

Among the events, which can cause a message to be sent, are:

- a calendar not defined for next year;
- a network not correctly terminated;
- symbol prompting requests.

The specific message text is generated automatically by the Entire Operations Monitor.

### **Message Recipients**

If Con-nect is installed in your system, the message is routed to the defined Con-nect user ID(s). The message includes the environment (Owner, Network, Job, Run) and the standard event text.

If sending to Con-nect is not possible, the message is routed via Entire System Server to the TP system user with the designated user ID. If no special node has been defined, the executing node is used.

If you enter =MAILBOX in the Processor field, the message is sent to the Entire Operations internal mailbox.

#### Note:

If no message recipient is defined for a network, the messages are sent to the SYSDBA mailbox.

For further details on mailboxes, see Section Mailboxes.

# **Listing Active Jobs for a Network**

- To list active jobs for a network (the number of active runs is given in the #Run column of the Network Maintenance screen)
  - 1. Type **A** in the line command field of the selected network.
  - 2. Press Enter.
  - 3. The Active Jobs screen appears with a list of active jobs for the selected network:

Own	08.00 er EXAMPLE ection A		_	ations 3.2.	1 *** 14:45:45 Network E01-CONTI Run from 385 to 385
С	Job *	Run Typ	JobId Node	Date Time	Message
_	E01-J01	385 JOB	7688 148	10.08 00:00	Ended ok
_	E01-J02	385 JOB	1000 148	00:00	Ended not ok - STEP02 C0012
	E01-J03	385 JOB	1001 148	00:00	Ended not ok - STEP03 SE37
_	E01-J04	385 JOB	1002 148	00:00	Ended not ok - STEP03 C0012
_	E01-J05	385 JOB	1003 148	00:02	Ended ok
_	E01-J06	385 JOB	1006 148	00:01	Ended ok
_					
_					
_					
_					
_					
***	******	*****	***** Bottom	of Data **	*******
A S	ched.Parms C	Cancel D	Deact E Edit	G Gen.JCL H	Hold I Input Cond J JCL
LR	esource M Mod	dify O EO	P Prose R Re	submit S Sy	sout U Release W Waiting for
	mand =>				
Ente	r-PF1PF2	PF3PI	'4PF5PF6	PF7PF	8PF9PF10PF11PF12
	Help Add	End A	Cond Save	up Do	wn ATask Left Right Menu

Within this list you can perform the same functions as if you had selected the option Active Job Networks from the Main Menu. For more information on active jobs and networks, see Section Active Job Networks.

#### Note:

All job and network definitions are stored on the master database.

All active jobs and networks are maintained on the active database.

# **Copying a Job Network Definition**

- When defining a new network, you can select an existing network and all its definitions from the Network Maintenance screen as a model for the new network.
  - 1. Select an existing network to be copied.
  - 2. Type C in the line command field of the network to copy.
  - 3. Press Enter. (Alternatively, you can press PF10 (Copy) from the Network Modification screen of the network to copy.)
- 4. The following window opens in which the names of owner and network to copy <u>from</u> already appear in the From fields:

12.08. Owner Select	EXAM		*** Entire Operations 3.2.1 ***  Network Maintenance	15	:18:26
Cmd #R			Network Node Description		
c - -	E	XAMPLE	E ADMIN 146 Administrator workshop E ADMIN2 146 Administrator workshop E B60-FLOW 31 Job Flow, BS2000		
_ _ _	! ! 3 !		Network Master Definition Copy		! ! !
_ _ _	! ! !		From To  Owner ==> EXAMPLE Owner ==> EXAMPLE  Network ==> ADMIN Network ==>	_	! ! !
*****	•		Alt. File ==> N (Y/N)		! ****
P Bes Comman	ch + .d =>				! akt +
			PF3PF4PF5PF6PF7PF8PF9PF10PF End Save Up Down Na	711 ktSt	

- 5. Enter name of the network to copy **to** in the To field. (If necessary, you can also enter a different owner and network in the From fields).
- 6. To open selection windows for networks, use an asterisk \* as wildcard.

#### Note:

You cannot copy a network to an existing network.

- 7. Press Enter to copy the network and close the window.
- 8. The Network Modification window opens for the new network and you can immediately modify the definitions within the new network.
- 9. The new network also appears in the list on the Network Maintenance screen.

### Notes:

- 1. If an alternate data file is defined in the Entire Operations Defaults (submenu of the System Services Menu), you can copy a network definition from there by setting the Alt.File field to **Y**.
- 2. The alternate file must be an Entire Operations System File. The network definitions must be created in the current version of Entire Operations.
- 3. When you are copying from a secondary file or between different owners, all defined symbol tables are also copied, however only if they do not already exist in the target environment.

# **Deleting a Job Network**

### 🚩 To delete a network

- 1. Type **D** in the line command field of the selected network on the Network Maintenance screen.
- 2. Press Enter.
- 3. A window opens in which you can confirm the deletion by entering the network name.

4. Type in the network name and press Enter to delete the network.

### **Notes:**

- 1. Deleting a network also deletes all definitions made for the network on lower levels in the Network and Job Maintenance facility.
  - Only authorized users can issue the **D** line command.
- 2. Entire Operations saves the last run number of a deleted network.

  The first run of a new network under the same name receives the last run number incremented by 1.

# **Displaying Overview of Job Flow within a Network**

- This function provides a short overview of the job flow within a network. The output can be sent to the screen or to the defined printer.
  - 1. Enter **F** in the line command field of the appropriate network.
  - 2. Press Enter.
  - 3. A window opens at the bottom of the screen:

	07.00 er SN			_	erations 3.2.1 *** rk Maintenance	10:41:17
Sele	ection	n OR				
Cmd	#Run		Network - *		Description	
_		SN	A-EXAMPLE	148	BRY-1	
_	3	SN	A-1	146	Time Range Test	
_		SN	ABC1	53	Demo 11.04.91	
_		SN	ABC1-A	53	Demo 11.04.91	
_		SN	ABC3	148	Demo 11.04.91	
_		SN	ABC4	148	Demo 11.04.91	
_		SN	ABC5	148	Demo 11.04.91	
f		SN	ANYSTEP-1	148	RZ Test 29.06.92	
_		SN	ASF-SELS	146	test selection/deletion	
_		SN	BFF-1	148	BFF Test 27.11.91	
_		SN	BFF +			+
****	****	******	*****!			! * * * *
A A	Active	e C Copy D	Dele !	Send	Output to Printer ? _ (Y/N)	!
		P Prose R				ļΥ
Enter	c-PF1-	PF2P	F3PF4P	F51	PF6PF7PF8PF9PF10	PF11PF12
	Help	p Add E	nd S	ave	Up Down	NxtSt Menu

- 4. You are asked Send Output to Printer?
- 5. If you enter **Y**, output is sent to the printer assigned to Natural printer (1), as specified in your Natural profile parameters.
- 6. If you enter **N**, the Job Flow of the network appears on the screen, for example:

(1) MESSAGE	Entire Ope Job Flow of Network D	10:44: Page	:48 1				
	Job	by Condition	from/	to Job	Owner	Network	
(1)	MESSAGE						
	I	MESSAGE-OK					
(2)	JOB1						
	I	JOB1-OK					
(3)	JOB2						
	I	JOB2-OK					
	+<	JOB2-OK <	(5)	RECOVER			
(4)	JOB3						
	I	LIBRARY FULL					
	+>	JOB3-OK	-> (6)	JOB4			
(5)	RECOVER						
	+>	JOB2-OK	-> (4)	JOB3			
			• • • • • • • •			• • • • • • • • • • • •	

This function is also available from the Reporting Menu. See Section Reporting.

# **Authorizing Other Users to Access a Network**

Entire Operations allows you to authorize users from other owners to access a network belonging

to your owner.

### Note:

Users grouped under the owner SYSDBA have unlimited access to all networks in the system. They do not need the authorization described in this subsection.

- 1. Type **G** in the line command field of the selected network on the Network Maintenance screen.
- 2. Press Enter.
- 3. The following window opens in which you can enter the authorization:

Owne	07.00 er SN			Ne	!						-+
Sele	ection	n OAR	_		!	Owner	SN	Network	DEMO-1	NE.I.	!
Cmd	#Dun	Owner	Network		:		Gran	ting Definit	ion		! -
Cilia	#Kuii		*				Gran		1011		: 1
	3		A-1		•	Cmd	Type	Name	Option	n .	;
_	-	SN	BSGV-2					BRY	-		.
_ _	18	SN	DEMO-NET	_	-	_	_			_	
	3	SN	EXCLUSIVE	1	!	_				_	!
	12	SN	E02-IOC-01	1	!						!
_	8	SN	R 769478	1	!	_				_	!
_	1	SN	R-152930	1	!	_				_	!
_	3	SN	SN-2	1	!	_				_	!
_					!	_				_	!
_					!	_				_	!
_					!	_				_	!
***	****	*****	*****	*	!						! *
A A	Active	e C Copy D	Delete F Fl	OW	!	DΙ	Delete				!
			Activate S	-							!
								PF5			!
Enter								Save			! -
	Helr	Add En	d S	av	+						-+

# **Column Headings: Granting Definition**

The input fields of the Granting Definition window are described in the following table:

Field	Description						
Cmd	One-charact	er line command input field. Possible option:					
	D	delete authorization					
Type	Specifies the	e object to be authorized. Possible options:					
	Owner	All users linked to the Entire Operations owner specified in the Name field.					
	User	One defined User.					
	Simply type	O for owner or U for user.					
Name	linked to tha	The user or owner to be authorized. If an owner, authorization is granted to all users linked to that owner. Enter an asterisk * and press Enter to display a selection list of all available users and owners.					
Option	Level of access granted. You can specify more than one option, for example RA for read and activate access. Possible options:						
	R	Read access to network (no maintenance).					
	w	Read and write access (maintenance allowed except delete network).					
	<b>D</b> Read, write and delete access allowed.						
	О	Like D, and authorized user ID can authorize other users.					
	A	User can activate network.					

- 4. Type in the user ID or owner and the level of access to be granted.
- 5. Press PF5 (Save) to save the definition.
- 6. You can enter up to 30 different names and options. If current window is full, press PF8 (Down) to scroll forward to next window. Press PF7 (Up) to scroll back to previous window.
- 7. Press PF3 (Exit) to return to the Network Maintenance screen.
- 8. The network appears on the Network Maintenance screen when the authorized user logs on to Entire Operations.

You can also use this function to delete existing authorizations.

# **Checking for a Loop in a Job Network**

If you type **H** in the line command input field for a network, Entire Operations runs a check of the links between the jobs.

• If a loop in the job flow is detected, the message appears:

where:

xxx is the name of the network tested for loops, and

yyy is the name of the job in the network, in which a cyclic link was **first** detected.

When a loop has been detected, a corresponding message is written to the Entire Operations Log.

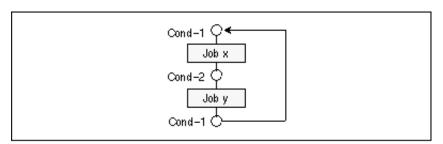
• If no loop is detected, the message appears:

• If the network contains more than 1000 jobs and no loop has been detected in these first 1000 jobs, the message appears:

```
Loop check limit 1000 exceeded. Loop check stops.
```

Entire Operations does not perform a loop test on more than 1000 jobs.

The following figure illustrates a loop within the job flow of a network.



# **Listing Jobs**

### To list jobs defined for a network

• Type **L** in the line command input field of the selected network on the Network Maintenance screen. Use this line command to maintain job definitions.

For more information, see Section Job Maintenance.

# **Deactivating Active Jobs**

### If you wish to prevent Entire Operations from submitting active jobs for a network

- 1. Type the **N** line command in the line command field of the selected network.
- 2. Press Enter.
- 3. The following window opens with a list of run numbers for the selected network together with the activation date:

Owne	er SN				_			2.1 ***		
Sele	ection	n OAR			!					
					!	Owner	SN		Network DEMO-NET	
Cmd	#Run	Owner	Network	No	!					
		*	*	_	!	Pleas	e mar	k the run	numbers, for which	
_	3	SN	A-1	14	!	activ	e job	s are to 1	oe deactivated:	
_	4	SN	BSGV-2	14	!					
n	18	SN	DEMO-NET	14	!	Cmd	Run	Activation	on	
_	3	SN	EXCLUSIVE	14	!	_	129	22.07.00	00:00 planned	
_	12	SN	E02-IOC-0	1 14	!	_	130	25.07.00	00:00 planned	
_	8	SN	R 76947	8 14	!	_	131	26.07.00	13:00 planned	
_	1	SN	R-152930	14	!	_	133	28.07.00	00:00 planned	
_	3	SN	SN-2	14	!	_	134	29.07.00	00:00 planned	
_					!	_	135	01.08.00	00:00 planned	
_					!					
_					!	PF3 E	nd	PF7 Up	PF8 Down	
***	****	******	******	** B	+-					
A A	Active	e C Copy I	Delete F F	low (	G G	rant H	Chec	k L List	Jobs M Modify	
NI	Deact	P Prose F	R Activate S	Sch	edu	le T A	cct W	Display S	Schedule X History	
Comn	nand =	=>								
Inter	-PF1	PF2I	PF3PF4	PF5-	P	F6P	F7	PF8PF9	PF10PF11PF12-	
	Help	Add E	End	Save		Ū.	р	Down	NxtSt Menu	

### To deactivate an active network

- 1. Mark the appropriate run number with any character.
- 2. Press Enter.

#### Note:

Deactivation is performed by the Entire Operations Monitor in the background. A slight delay could occur during this operation.

## **Creating Online Documentation for a Network**

You can add a brief description of a job network when defining a network in the Network Addition/Modification window (see Description field). This short description appears in the list of networks on the Network Maintenance screen.

- If you wish to add more online documentation for a network, you can invoke the Entire Operations Editor from the Network Maintenance screen:
  - 1. Type **P** in the line command field of the selected network.
  - 2. Press Enter.
  - 3. The Entire Operations Editor screen appears:

```
Edit-PROSE Nw: E01-CONTI----- Columns 001 072
00001 Network 'E01-CONTI'
00002 -----
00003 This network consists of 6 independent jobs. Each of them forces
00004 a defined event at end-of-job time. Each job executes the
00005 program 'NOPCONTI' which resides on the installation library
00006 'NOPnnn.LOAD'. The necessary JCL which is named 'NOPE*' is stored on
00007 the installation library 'NOPnnn.SRCE'.
00009 The prose for each job in this network contains a short description
00010 to enable the user to define his own test examples.
00011
                        Event at End-of-job
00012 Log Jobname
00013
      _____
00014
00015 +----+
00016 ! E01-J01 !
                        Job ended ok.
00017 +----+
      !
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
              End Rfind Rchan Up Down Impo Left Right Curso
    Help
```

You can enter and edit text using Editor commands. For a detailed description of the Entire Operations Editor, see the Software AG Editor documentation.

Once a text is written, it can be read by any user who is authorized to access the network. The line command  $\mathbf{P}$  entered for the network in the list of networks displays the current text.

You can also display or print online documentation in the Entire Operations Reporting facility (Reports option on the Main Menu - see Section Reporting).

You can also create online documentation at the job level (see Section Job Maintenance).

## **Activating a Job Network Manually**

The Entire Operations Monitor activates job networks automatically according to their defined schedules. However, it is also possible to activate a network manually from the Network Maintenance screen.

### To do this

- 1. Type  $\mathbf{R}$  in the line command field of the selected network.
- 2. Press Enter.
- 3. The following window opens in which you can change the activation date and specify forced (manual) activation:

Owne	07.00 er SN ection	n OAR		*** Entire Operations 3.2.1 ***  Network Maintenance	10:48:53
Cmd	#Run	Owner		Network Node Description	
	3	SN	+- !		·+ !
_		SN	!	Network Activation	!
r	18	SN	!		!
_	3	SN	!	Owner ==> SN	!
_	12	SN	!	Network ==> DEMO-NET	!nts
_	8	SN	!	Last Schedule Extract ==> 11.07.00	1
_	1	SN	!	at ==> 08:56:03	1
_	3	SN	!	Last Execution Date ==> 11.07.00	1
_			!	Last Run Number ==> 147	1
_			!		!
_			!	Use Time in Schedule ==> N (Y/N)	1
******		!	or activate at Date ==> 11.07.00	! * * * * * * * * * * * * * * *	
A A	Active	e C Copy	!	Time $==> 10:49:01$	! Modify
NI	Deact	P Prose	!	JCL Check only $==> N (Y/N)$	!le X History
Command =>		!	EnterPF1PF3	!	
Enter-PF1PF2		!	Activate Help End	!0PF11PF12	
	Help	p Add	+-		+ NxtSt Menu

### **Field Descriptions: Network Activation**

The input fields of the Network Activation window are described in the following table:

Field	Description						
Owner	Owner of network to be activated.						
Network	Netwo	ork to be activated.					
Last Schedule Extract/at	1	Date and time of last automatic schedule extraction for this network by the Entire Operations Monitor.					
Last Execution Date	Date of last activation.						
Last Run Number	Run number of last activation.						
Use Time in Schedule	Enter Y (yes) here to activate the network within the defined time frames (Earliest Start, Latest Start, Deadline), even if the current date is not a scheduled date for this network. With this option, you can force the same time dependencies as if the network were scheduled and activated automatically.						
or activate at Date/Time	Shows the current date and time. You can modify date and time to force activation at any time on any date. There is no limitation for future date and time settings.						
only OS/390, OS/390, BS2000/ UNIX: S Window An actua		Only a JCL check is performed for the job network or job. OS/390, JES2: TYPRUN=SCAN OS/390, JES3: EXEC PGM=JCLTEST BS2000/OSD: /MODIFY-SDF-OPTIONS MODE=TEST UNIX: Script execution with set -vn Windows NT: Jobs are executed as 'Dummy on account of JCL Check'. An actual JCL check does not take place. The necessary commands are automatically inserted.					
	N I	Normal submission.					

There are several situations in which you may wish to activate a job network manually (press Enter to activate the network):

- When no schedule has been defined for the network;
- When the same network is currently active;
- When the network is not scheduled for the current date;
- To reactivate a network.

Only authorized users can activate job networks manually. When a network is activated, all jobs within the network, except recovery jobs, are activated.

If a symbol needs to be entered in the symbol tables used in the network, this is done now. See Symbol Prompting during Manual Activation. See also Symbol Prompting in Section Symbols.

# **Display Network Accounting Data**

### To display accounting data for jobs in a selected network

- 1. Type **T** in the line command field of the selected network.
- 2. Press Enter.
- 3. The following window opens in which you can specify dates, times and run numbers for the jobs:

```
11.07.00
                 *** Entire Operations 3.2.1 ***
                                                   10:55:50
Owner EXAMPLE
                    Network Maintenance
Selection OR_
Cmd #Run Owner Network Node Description
       *---- E*----
       EXAMPLE E-910212 148 Demo Network 12.02.91
    10 EXAMPLE E60-FLOW 148 DEMONSTRATION NETWORK
           +----+
          ! Owner EXAMPLE Network DEMO-NET
              Date / Run Number Selection
******* ! From Date 11.07.00 00:00 to 11.07.00 10:59 !*******
 A Active C C ! From Run 1____ to 99999
                                                 !у
 N Deact P Pr !
                                                 !istory
Command => __ ! PF3 End
Enter-PF1---PF +-----+1--PF12---
    Help Add End Save Up Down
                                               NxtSt Menu
```

### **Field Descriptions: Date / Run Number Selection**

Field	Description
From Date	Enter the date and time from which to display accounting data.
to	Enter the date and time until which to display accounting data.
From Run to	Enter the range of run numbers for which to display accounting data.

- Enter dates, times and run numbers.
- Press Enter.
- The Job Accounting Data screen appears:

11.07.00 Owner EXAM	MPLE					** Netw	11:32:21 ork E60-FLOW
Job	Run	JobId	Date	Start	Stop	Elapsed min	CPU Time sec
JOB-01	564	2057	01.07.00	13:14:05	13:15:06	1.01	0.02
JOB-012	564	2060		13:15:36	13:17:36	2.00	0.01
JOB-019	564	2061		13:15:40	13:17:40	2.00	0.01
JOB-013	564	2066		13:18:02	13:20:03	2.01	0.01
JOB-014	564	2074		13:20:29	13:22:30	2.01	0.01
JOB-015	564			13:22:57	13:22:57	0.01	
JOB-02	564	2082		13:23:00	13:24:02	1.03	0.02
JOB-03	564			13:24:27	13:24:27	0.01	
JOB-04	564	2086		13:24:29	13:26:30	2.01	0.01
JOB-05	564			13:26:53	13:26:53	0.01	
(Network)	564			13:14:05	13:28:00	13.91	0.11
JOB-06	564	2099		13:26:59	13:28:00	1.01	0.02
JOB-01	566	2668	02.07.00	15:24:56	15:25:56	1.00	0.02
						1.24	0.01
inter-PF1	-PF2		PF4PF5- Net	446'49 aU		-PF.ABF.T0-	-PF11PF12

### **Column Headings: Job Accounting Data**

For explanation of the column headings on the Job Accounting Data screen, see the subsection Column Headings: Job Accounting Data.

### **Special PF Keys: Job Accounting Data**

You can perform the following function from the Job Accounting Data screen using this PF key:

Key	Name	Function				
PF4	Net	Alternate display:				
		<ul><li> Job and network data together (as in above example).</li><li> Network data only.</li></ul>				

# **Symbol Prompting during Manual Activation**

If any of the activated jobs are MAC-type jobs (dynamic JCL generation) or JOB-type jobs whose JCL contains symbols for variable values, these symbols are replaced by their current values during the manual activation, except those that are defined to be replaced at submission time.

If the activation is manual, and if the JCL of a job contains symbols that are defined to be prompted, you are prompted for the values to be used in this activation. For the symbols to be prompted, the following screen appears in which you can enter the values to be used, for example:

11.07.00 Owner EXAMPLE Network E62-NET	*** Entire Operations 3.2.1 *** 16:08:36  Symbol Prompting for Table EXAM-ST1  Run 261 on 11.07.00 at 16:08
C Symbol CLASS JOBLIB MSGCLASS PARM-1 STEPLIB  L long value	Value  G  NOP.EXAMPLE.LOAD  X  8888  NOP.EXAMPLE.LOAD  ***********************************
	Accpt Cncl Up Down

For further information, see the subsection Symbol Prompting in Section Symbols.

# **Symbol Prompting User Routine**

To define your own routine for symbol prompting in this network, press PF8 (SP-UR) from the Network Addition/Modification window.

For a full description, see the subsection User-defined Symbol Prompting in Section Symbols.

# Scheduling a Job Network

This section covers the following topics:

- General Scheduling Considerations
- Using Calendars
- Defining a Schedule for a Job Network
- Displaying Schedule for a Job Network
- Producing Network Start Summary
- Displaying Next Network Starts Single Network
- Displaying Next Network Starts System-Wide
- Displaying Execution History for a Network

# **General Scheduling Considerations**

You need not define a schedule for a network. If no schedule is defined and all schedule definitions are left empty, the network is never activated automatically by the Entire Operations Monitor.

All network schedules are checked by the Monitor at least once a day, usually at midnight or after the first start of the Monitor on a new day. The networks with a schedule entry for the current day are activated. If no Earliest Start Time is defined, execution starts immediately after activation, depending on the earliest start time defined at job level.

# **Using Calendars**

You need not use calendars when defining a schedule. If no calendar is specified, all days are treated as workdays.

If a calendar is specified, a schedule definition date is used only if it is a calendar workday. Networks are not activated on holidays. To activate a network on the workday **after** the holiday, mark the Monthly, Weekly or Explicit Date of the schedule definition with an **A**. To activate a network on the workday **before** the holiday mark the appropriate date with a **B**.

For more information on calendars, see Section Calendar Maintenance.

#### **Notes:**

- 1. The Monitor searches for the calendar under the network owner. If it does not find the calendar, the Monitor searches for it system-wide under SYSDBA.
- 2. Think ahead! Calendars are year-dependent. If a calendar cannot be found for the current year, the network is not scheduled and an error message is issued. **Be sure to define calendars for the coming year before they are needed!**

From the month of November of the past year onwards, the Entire Operations Monitor issues warning messages to the log.

# **Defining a Schedule for a Job Network**

### To define a schedule for a network

- 1. Type **S** in the line command field of the selected network on the Network Maintenance screen.
- 2. Press Enter.
- 3. The Schedule Definition screen appears:

```
16.02.00
                   *** Entire Operations 3.2.1 ***
                                                          15:05:30
                         Schedule Definition
Owner SN
Network WNT403A
   Schedule Type ==> W
                     M Monthly W Weekly E Explicit Dates
   Calendar
              ==> _____
  Earliest Start ==> ____ Schedule effective from => ____
   Latest Start ==> ____ days later
                    ____ days later
  Number of Activations ==> ____ every ==> ___ minutes
  Activate at ==> ___
Command=>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help End Save
                               Cal Delet
```

4. Enter data for this screen as described on the following page.

### **Special PF Keys: Schedule Definition**

You can perform the following function from the Schedule Definition screen using this PF key:

Key	Name	Function
PF9		Displays the calendar linked to this schedule (if defined). The calendar can be modified in Calendar Maintenance.

### **Field Descriptions: Schedule Definition**

The input fields of the Schedule Definition screen are described below:

Field	Description				
Schedule Type	Type of schedule. Enter one of the following options and press Enter to o appropriate window:				
	M Days of selected months.				
	w	Weekdays of selected months.			

	E	Explicit dates.				
	When you first define the schedule, the value meaning:	ue that appears here has the following				
	-	(no value) No data for the schedule are available.				
	M	Monthly data are available for the schedule, and explicit data could also be available.				
	W	Weekly data are available for the schedule, and monthly or explicit data could also be available.				
	E	Only explicit data are available for the schedule.				
Calendar	Enter the name of the calendar on which the schedule is based. To display a selection list of available calendars, type in an asterisk * and press Enter. Select a calendar from the list. See the subsection Using Calendars and Section Calendar Maintenance.					
Earliest Start	Enter the earliest start time for the network. No job in the network can start before this time. The Earliest Start Time is used to compute network schedule times.					
Latest Start	Enter the latest start time for the network. The first job in the network must start by this time, if possible. If not, a warning message is sent and the job is not submitted.					
Deadline	Enter the time by which the last job in the network must be finished. The Deadline is used to compute the earliest and latest start times for the jobs in the network.					
days later	You can use this field for Latest Start and I longer than 24 hours.	Deadline to define a time span lasting				
	Note:	If Latest Start or Deadline is before the Earliest Start, the same time on the following day is assumed by default.				
Schedule effective from	If the schedule should not become effective immediately, enter the time at which it should become effective.					
Number of Activations	Enter the number of times the network is to be activated at each activation according to schedule. You can specify up to ten (10) activations. If the network is to run once only, leave this field blank.					
Number of Activations	This field should only be used, if the netwo In this case, please enter the number of acti 999 Activations may be defined as a maxim	vations per day.				
Alle Minuten (Zeitintervall)	If a network is to run more than once per day, you can enter the time interval between 2 subsequent network activations. Unit: minutes.					

## **Defining Dates for a Network Schedule**

- 1. Enter a Schedule Type parameter (M, W or E).
- 2. Press Enter.
- 3. A window opens in which you can enter dates for the Schedule Type selected.

### **Monthly Schedule**

If you select type **M** (Days of a Month), you can specify months and days by entering numerical identifiers. Alternatively, you can specify AL for all months and LD for the last day of the month.

Below is an example of a schedule defined by days of the month:

```
*** Entire Operations 3.2.1 ***
16.02.00
                                                  15:11:42
                     Schedule Definition
Owner SN
Network DEMO-NET
  Schedule Type ==> M M Monthly W Weekly E Explicit Dates
                 Monthly Schedule Definition
  Month List ==> _1 _4 _7 10 __ __ __ __
   Day List ==> 15A LD_ ___ __
 !
 !
 !
   PF1 Help PF3 End
        ______
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help End Save
                                      Cal
```

The network with this schedule is activated every fifteenth and last working day of the months January, April, July and October of the year.

The days entered here are correlated with the list of months. A day can be followed by a letter with a special meaning:

A	next workday, if holiday	V	workday of month, counted from end of month
В	previous workday, if holiday	W	workday of month

### **Examples:**

Column	Description				
25	The 25th day of the give month.				
10W	The 10th workday of the month.				
1V	The last workday of the month.				
LDA	A The last day of the month; next workday if this is a holi				

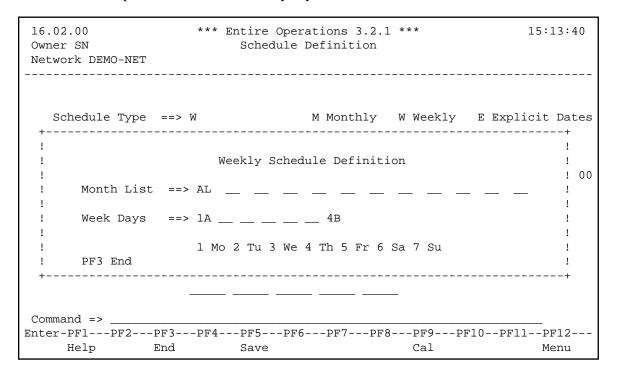
#### Note:

The combinations LDV and LDW are not allowed.

### Weekly Schedule

If you select type **W** (Days of a Week), you can specify months by entering numerical identifiers (01-12) and days of the week by marking them with any character. Alternatively, you can specify AL for all months.

Below is an example of a schedule defined by days of the week:



The network with this schedule is activated every Monday and Thursday of every month of the year. The days entered here are correlated with the list of months. Each combination of month and weekday is a schedule date. 1 is Monday, 2 is Tuesday, and so on.

A weekday can be followed by a letter with a special meaning:

A	next workday, if holiday	V	workday of week, counted from end of week
В	previous workday, if holiday	X	(field can also be left <b>blank</b> ) the given weekday, even if it is a holiday
W	workday of week, e.g.: 1W		

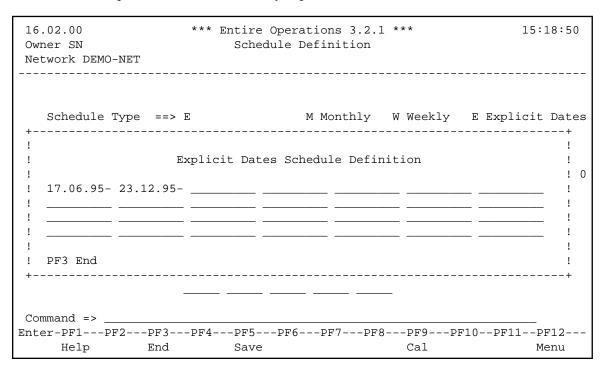
### **Examples:**

Column	Description
1	Monday.
1A	Monday, but the next workday, if Monday is a holiday.
2V	The second-last workday of the week.

### **Explicit Date Schedule**

If you select type **E** (Explicit Dates), you can specify dates in the same format as in the headings section of the screen (top left corner).

Below is an example of a schedule defined by explicit dates:



The network with this schedule will be activated on the 17th of June and the 23rd of December 1995, without a calendar check. The date can be followed by an **A** or a **B** to enable execution on the workday before (**B**) or after (**A**) a holiday in the Calendar entered on the Schedule Definition screen.

You can also use the explicit date schedule to prevent the activation of the network on a particular date. For example, if you have scheduled the network for every Thursday of every month but do not wish the network to run on Thursday, the 23rd of December:

- 1. Enter the date here followed by a minus sign (23.12.95-).
- 2. Press Enter to save the date specification.
- 3. Press PF3 (Exit) to close the window.
- 4. Press PF5 (Save) to save the schedule and PF3 (Exit) to return to the Network Maintenance screen.

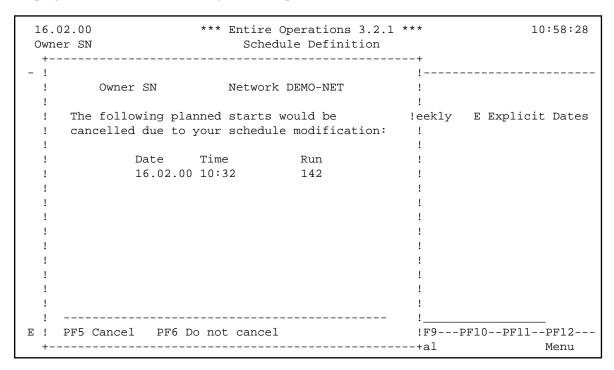
### Note:

If you define a **past date** as an explicit date, a warning message appears.

### **How Schedule Modification Affects Planned Starts**

In the Entire Operations Defaults the system administrator can define that network schedules are to be extracted several days before the network start. These planned starts are represented by activation trigger records, which already have a run number.

If your schedule modification affects any planned start, you have the option of cancelling the starts or keeping them active. The following window opens:



### **Special PF Keys: Planned Starts**

You can perform the following functions from the Planned Starts window using these PF keys:

Key	Name	Function
PF5	Cancel	Cancels starts listed. A confirmation window opens for each start to be cancelled.
PF6	Do not cancel	Keeps all listed starts active, regardless of your schedule modification.

### **Cancelling Planned Starts**

### To cancel one or more of the planned starts listed

• Press PF5 (Cancel).

A confirmation window opens for each start to be cancelled:

### **Keeping Planned Starts**

- To keep all listed starts active, regardless of schedule modifications you have made
  - Press PF6 (Do not cancel).

# Displaying Schedule for a Job Network

- To display a defined schedule in calendar format for a network
  - 1. Type W in the line command field of the selected network
  - 2. Press Enter.
  - 3. A window opens showing the current half of the year in calendar format. The dates on which the network is to be activated appear on the schedule:

19.02.00 Owner SN				,		Entire hedule	_							C	Cale	enda	10: ar DEMO	57:18 CAL
		Já	anua	ary				Fe	ebru	ıary	y			Ma	arch	ı		
Monday			11	_			1		15	-	•		1	8	15	22	29	
Tuesday		5	12	19	26		2	9	16	23			2	9	16	23	30	
Wednesday		6	13	20	27		3	10	17	24			3	10	17	24	31	
Thursday		7	14	21	28		4	11	18	25			4	11	18	25		
Friday	1	8	15	22	29		5	12	19	26			5	12	19	26		
Saturday																		
Sunday		•	•				•	•	•	•			•	•	•	•		
		Αŗ	ori]	1				Ma	аy					Jι	ıne			
Monday		5	12	19	26			3	10	17	24	31		7	14	21	28	
Tuesday		6	13	20	27			4	11	18	25		1	8	15	22	29	
Wednesday		7	14	21	28			5	12	19	26		2	9	16	23	30	
Thursday	1	8	15	22	29			6	13	20	27		3	10	17	24		
Friday	2	9	16	23	30			7	14	21	28		4	11	18	25		
Saturday																		
Sunday			•					•	•	•	•		•	•	•	•		
Enter-PF1P	F2-	I	PF3-	]	PF4-	PF5-	I	PF6-	I	PF7-	F	PF8	PF9-	I	PF1(	) – – I	PF11P	F12
Help		Ι	End	(	Over	v			Ţ	Jp	Ι	Down	Cale	en I	list	o 1	NxtSt	

The network based on this schedule is activated every weekday from January to June except on Saturday and Sunday.

You can enter any valid year in the Year field in the header section of the screen to display the schedule for the specified year.

Press PF8 (Down) to display the next half-year and PF7 (Up) to display the previous half-year. You can also use these PF keys to display the previous or following year.

If a calendar is linked to the schedule, but not defined for the displayed year, you are notified by an error message.

### Note:

There are two different formats for all schedule and calendar displays. The format can be modified in the Entire Operations Defaults submenu of the System Services Menu.

### **Special PF Keys: Schedule**

You can perform the following functions from the Schedule screen using these PF keys:

Key	Name	Function
PF4	Overv	Produces Network Start Summary for a given date. See also Network Activition Summary in Section Reporting.
	Note:	(Only if your Natural online system runs under OS/390) Before you press this key, place cursor on a valid date.
PF9	Calen	Display Calendar Displays the calendar linked to this schedule (if defined). The calendar can be modified in Calendar Maintenance.
PF10	Histo	Execution History Displays the previous execution dates of the network.
PF11	NxtSt	Next Starts Displays the next ten network and job activations for the network and whether they are scheduled or manual activations.

# **Producing Network Start Summary**

- To produce the Network Start Summary for the current network
  - 1. Press PF4 (Overv) on the Schedule screen of the appropriate network.
  - 2. The following windows open:

19.02.00				+													+1	:16
Owner SN				!													! 7	L
				!		]	Net	worl	c St	art	t Summa	ary					!	
		Já	anu	!													!	
Monday		4	11	!	Owner	SN Ne	two:	rk 1	DEMO	O-NI	ET						!	
Tuesday		5	12	+													+	
Wednesday		6	13	20	27	3	10	17	24			3	10	17	24	31		
Thursday					28			18				4	11	18	25			
Friday			15	22	29	5	12	19	26			5	12	19	26			
Saturday												_						
Sunday								·										
Suracy	•	•	•	•	•		•	•	·			•	•	•	•			
		Aj	ori.	L			M	ay					J۱	ıne				
Monday		5	12	19	26		3	10	17	24	31		7	14	21	28		
Tuesday		6	13	20	27		4	11	18	25		1	8	15	22	29		
Wednesday		7	14	21	28													
Thursday			15	22	+												+	
Friday																	!	
Saturday						Send	Ou	tput	t.c	o Pi	rinter	?	N	(Y/1	71)		!	
Sunday						20110		- <u>-</u> - ~				•		/ -	,			
	•	•	•	•	+												· +	
Enter-PF1F	F2-	]	PF3-	]	F4	PF5	PF6	]	PF7-	]	PF8I	PF9	]	PF1	0I	PF11	LPF1	.2
Help		]	End	(	Overv			τ	Jp	I	Down (	Cal	en l	Hist	to 1	NxtS	St	

- 3. In the window at the bottom of the screen you are asked Send Output to Printer?
- 4. If you enter **Y** and press Enter, output is printed on the printer assigned to Workfile 1. If you enter **N** and press Enter, the Network Start Summary screen appears, for example:

5. Press PF3 (End) to return to the Schedule screen.

If you want to produce a Network Start Summary for **all** network activations on a given day, see the subsection Network Activation Summary in Section Reporting.

# **Displaying Next Network Starts - Single Network**

- To display the next ten network and job starts for a network
  - Press PF11 (NxtSt) on the Schedule screen.

The following window opens:

19.02.00 Owner EXAMPLE		*** Entire Operations 3.2.1 *** 15:2 Schedule E60-FLOW Year 2000 Calendar EXAMP	LECAL
	!		- + !
Monday	!	Owner EXAMPLE Network E60-FLOW	!
Tuesday	!	Next Start Times	!
Wednesday	!		!
Thursday	!	Cmd Date Act. Start Run Type	!
Friday	!	00-02-17 00:00 00:00 Schedule Table	!
Saturday		00-02-18 00:00 00:00 Schedule Table	!
Sunday	!	00-02-22 00:00 00:00 Schedule Table	!
	!	00-02-24 00:00 00:00 Schedule Table	!
	!	00-02-25 00:00 00:00 Schedule Table 00-02-29 00:00 00:00 Schedule Table	!
Monday	!	00-02-29 00:00 00:00 Schedule Table	!
Tuesday	!	00-03-01 00:00 00:00 Schedule Table	!
Wednesday	!	00-03-02 00:00 00:00 Schedule Table	!
		00-03-03 00:00 00:00 Schedule Table	!
Friday	!	00-03-07 00:00 00:00 Schedule Table	!
Saturday	!	Bottom of Data	!
Sunday	!	D Delete M Start Time S Active Symbols	!
	!	PF1 Help PF2 Add PF3 End PF7 Up PF8 Down	!
Enter-PF1P	+-		-+
Help		End Overv Up Down Calen Histo NxtSt	

This window displays a list of planned activations for **one network only**.

The Type column displays the activation type (scheduled, manual). You can delete manual activations with the  $\mathbf{D}$  (delete) line command. Scheduled activations can only be changed by modifying the schedule definition.

### Note:

To display a **system-wide** list of planned activations, press PF11 (NxtSt) from the Network Maintenance or Active Networks screens. For further information, see Displaying Next Network Starts - System-Wide.

### **Column Headings: Next Starts**

The following table explains the column headings for the data listed in the Next Starts window:

Column	Description								
Cmd	One-character input field for line commands. Possible values are listed in the command section of the screen (see also the subsection Line Commands, below).								
Date	Date of planned network start.								
Act.	Time of planned network start.								
Start	Time of planned start of network in its operating system.								
Run	Run number for this activation.								
Type	Displays the current status of the activation. Possible types are:								
	Schedule Table,								
	• on request,								
	• Schedule,								
	• active,								
	Aw. Symbol Prompting,								
	Symbol Entry in Progress.								

### **Special PF Keys: Next Starts**

You can perform the following functions from the Next Starts window using these PF keys:

Key	Name	Function
PF2	Add	Activates a network manually.

#### Note

This function is not available under Natural 2.1. In this case, return to the Network Maintenance screen and enter the  ${\bf R}$  line command to activate the network manually. See the subsection Activating a Job Network Manually in Section Network Maintenance.

### **Line Commands: Next Starts**

Use the following line commands to perform the described functions on any network activation listed in the Next Starts window:

Cmd	Description								
D	Cancels the planned network start.								
M	Modify the start time of a planned network start.								
S	When you enter this command for a network whose Type is:	you can :							
	Schedule, active	modify the active symbols in the Active Symbol Table(s) of the network.							
	Awaiting Symbol Prompting	perform symbol prompting for this planned start.							

### **Starting a Job Network Manually**

### To start a network manually

- 1. Press PF2 (Add) from the Next Starts window.
- 2. The Network Start window opens.

For more information, see the subsection Activating a Job Network Manually in Section Network Maintenance.

### **Symbol Prompting**

### To perform symbol prompting for a planned start

- 1. Enter **S** in the line command field of the appropriate job or network with Type = Aw. Symbol Prompting.
- 2. Press Enter.
- 3. The Symbol Prompting screen appears.

For further information, see the subsection Symbol Prompting.

## **Modifying an Active Symbol Table**

## To modify the active symbols in a network's Active Symbol Table(s)

- 1. Enter **S** in the line command field of the appropriate job or network with Type = Schedule, active.
- 2. Press Enter.
- 3. The Active Symbol Tables window opens:

19.02.00 Owner SN			re Operations 3.2.1 le DEMO-NET Year	2000	Cale	ndar DEMO	01:54 CAL
	+-					+ !	+ !
Monday	!	Owner SN	Network DEMO-NET	Run	136	!	!
Tuesday	!	Ac	tive Symbol Tables			!	!
Wednesday	!		_			!	!
Thursday	!	Cmd Table	Cmd Tabl	е		!	!
Friday	!	_ SN-01	_			!ting	!
Saturday	!	_ DEMO	_			!ting	!
Sunday	!	_	_			!ting	!
	!	_	_			!ting	!
	!	_	_			!ting	!
Monday	!	_	_			!ting	!
Tuesday	!	_	_			!	!
Wednesday	!	_	_			!Progress	!
Thursday	!	_	_			!ting	!
Friday	!	_	_			!	!
Saturday	!					!	!
Sunday	!	Select Symbol Ta	able by marking.			!	!
	!	PF3 End				!	!
Enter-PF1P	+-					+	+
Help		End Overv	Up Dow	n Ca	len Hist	o NxtSt	

- 4. Mark the appropriate symbol table with any character.
- 5. Press Enter.
- 6. The Active Symbol Table screen appears:

19.02.00 Owner SN	*** Entire Operation Active Symbol Table		*	15	5:02:44
Network DEMO-NET		521 02		Run	136
C Symbol	F P Value		modified	 by	
_ A1	A N 'HUGO'		SN	07.02.00	14:09
_ A2	A N '''QUOTED'''		SN	07.02.00	14:09
_ A3	A E 'XXX '		SN	26.09.99	15:33
_ A4	A E ' '		SN	22.11.99	15:42
_ A5	A E AAA		SN	27.11.99	11:28
_ A6	N A 777		SN	16.02.00	10:25
_ A7	A E PROMPTED AT 14:25		SN	20.01.00	14:20
_ A8	A E DFFDDFFD		SN	20.01.00	14:20
_ CLASS	A A G		SN1	22.01.00	11:45
_ CLASS-PRIV	A E *** empty ***		SN1	22.01.00	11:42
_ DATE	D A 20000217		SN	17.02.00	15:19
_ EMPTY	A E YYYYYYYY		SN	11.02.00	11:31
_ HUGO	A E A VERY LONG STRING	TO TEST S	SN	22.11.98	10:31
_ JOBLIB	A E NOP.DEV.LOAD		SN	20.11.99	14:21
******	************** More ***	*****	*****	*****	*****
D Delete M Modif	Ży				
Enter-PF1PF2	- -PF3PF4PF5PF6PF	7PF8	PF9PF1	0PF11	PF12
Help Add					

- 7. Enter M in the line command field of the appropriate symbol.
- 8. Press Enter.
- 9. The Active Symbol Modification window opens for the symbol selected.

  This window is identical to the Master Symbol Addition window in Section Symbols and allows you to modify the symbol value.
- 10. Modify the symbol(s) as desired.

- 11. Press PF5 (Save) to save the modified active symbol table.
- 12. Press PF3 (End) **twice** to close the Active Symbol Modification window and return to the Next Activations window.

### Field Descriptions: Active Symbol Modification

For field descriptions, see Field Descriptions: Master Symbol Addition in Section Symbols.

### **Special PF Keys: Active Symbol Modification**

For a description of PF key functions, see PF Keys: Master Symbol Addition in Section Symbols.

# **Displaying Next Network Starts - System-Wide**

- To display a system-wide list of all planned job and network starts
  - Press PF11 (NxtSt) from the Schedule or Active Networks screens.

The following screen appears:

19.02.00			e Operation duled Netwo			16:09:38
C Owner	Network	Job	Date	Start	Run	Туре
			16.02.00	16:09		
_ SN	RZF-02		16.02.00	16:40	250	Aw. Symbol Prompting
_ SN	A-EXAMPLE		16.02.00	18:15	498	Schedule, active
_ EXAMPLE	E60-FLOW		17.02.00	00:00	1854	Schedule, active
_ GFR	ADLER3		17.02.00	00:00	64	Schedule, active
_ GFR	HUGO-2		17.02.00	00:00	790	Schedule, active
_ GFR	ZEITP		17.02.00	00:00	253	Aw. Symbol Prompting
_ SN	BS2-EX-2		17.02.00	00:00	1348	Schedule, active
_ UKSJU	R279736		17.02.00	00:00	50	Schedule, active
_ UKSJU	R288716		17.02.00	00:00	20	Aw. Symbol Prompting
_ UKSJU	R278535SUB		17.02.00	07:46	37	Waiting for Start Time
_ GFR	ADLER1		17.02.00	08:00	152	Schedule, active
_ SML	SMLBEWAG		17.02.00	10:15	862	Schedule, active
_ GFR	BS2000		17.02.00	12:32	479	Aw. Symbol Prompting
*****	*****	*****	** m o r e	*****	****	******
D Delete	M Start Time	S Activ	e Symbols			
Command =>						
Enter-PF1	PF2PF3	PF4PF5-	PF6PF	7PF8	PF	9PF10PF11PF12
Help	End		Up	Dow	n	Menu

This screen displays a chronological list of all planned network or job starts, both scheduled and manual.

**Scheduled** starts are extracted from the network schedules and put into a pre-activation status. The extraction is usually performed at midnight, one day in advance.

Manual starts are explicitly invoked as manual activations by any user.

If a special start time was not entered, the daily time frame is used. See the subsection Activating a Job Network Manually in Section Network Maintenance.

### **Column Headings: Next Scheduled Network Starts**

The following table explains the column headings for the data listed on the Next Scheduled Network Starts screen:

Column	Description						
С	One-character input field for line commands. Possible values are listed in the command section of the screen (see also the subsection Line Commands, below).						
Owner	Owner of the network to be activated.						
Network	Network to be activated.						
Job	If the network contains only one job, the job name also appears in this column.						
	You can enter a starting date and/or time in the fields immediately below the Date and Start columns to display only those activations due to start after that time.						
Date	Date of activation.						
Start	Starting time of activation.						
Run	Run number for this activation.						
Type	Displays the current status of the activation. Possible types are:						
	<ul> <li>Schedule Table,</li> <li>on request,</li> <li>Schedule,</li> <li>active,</li> <li>Aw. Symbol Prompting,</li> <li>Symbol Entry in Progress.</li> </ul>						

### **Line Commands: Next Scheduled and Manual Network Starts**

Use the following line commands to perform the described functions on any network start listed on the Next Scheduled and Manual Network Starts screen:

Cmd	Description							
D	Cancel the planned network start.							
M	Modify the start time of a planned network start.							
S	When you enter this command for a network whose <b>Type is</b>	You can						
	Schedule, active	modify the active symbols in the network's Active Symbol Table(s).						
	Awaiting Symbol Prompting	perform the symbol prompting for this planned activation.						

## **Modify the Start Time of a Planned Network Start**

- To modify the start time of a planned network activation
  - 1. Enter **M** in the line command field of the appropriate network.
  - 2. Press Enter.
  - 3. The Start Time Modification window opens:

19.02.00	Next	*** Entir	e Operation and manual			s		16:49:13
C Owner	Network	Job				Турє	2	
CN	n 1		19.02.00			3	G1 1	D
_ SN	A-1						-	Prompting
<del>_</del>								
_ SN	A-EXA !							Prompting
_ ~-	SUEDM !	Start	Time Modifi	cation				active
_ SN	BS2-E !						! :	active
_ SN	SYMFC !	Owner	==> EXAMI	LE			! :	active
_ HBU	MONTE !	Network	==> E40-F	EC-01			! :	active
_ SML	SMLBE !	Job	==> -				! :	active
_ DQA	QAC02 !	Run	==> 1036				! :	active
_ GFR	NW-17 !						!	Prompting
m EXAMPLE	E40-R !	Start					! :	active
EXAMPLE	E20-D !	planned	==> 17.02	.00 1	4:00		! :	active
<del>-</del>		new					! :	active
_ ******	***** !						!	*****
D Delete M	W Start !	-DF1	DF3DF	'5			1	
Command => _				ve				
Enter-PF1I		_					· ·	 [11D[12
							<del>-</del> т.	
Help	End		U	Do Do	MII			Menu

4. You can enter a new date and start time, but they must be greater than or equal to the current values.

#### Note:

A start time up to the current time plus **activation before earliest start** causes an immediate activation of the jobs of the network.

- 5. Press PF5 (Save) to save the new start time.
- 6. Press PF3 (End) to return to the Next Scheduled and Manual Network Starts screen.

# **Displaying Execution History for a Network**

The execution history is a record of past schedules. It shows the days on which the network was actually scheduled. The data on the History screen cannot be modified.

There are history dates for the current and for the two preceding years (provided the network already existed at that time).

To display the execution history

1. Type **X** in the line command field of the selected network. Press Enter.

The display is in calendar format starting with the current half year. The dates on which the network ran appear on the history:

19.02.00 Owner SN			Operations 3		11:06:21 Calendar DEMOCAL
	Janua	ry	February		March
Monday	. 11	18 .	15 .		
Tuesday	. 12	19 .	16 .		
Wednesday	6 13	20 .	17 .		
Thursday	7 14	21 .	18 .		
Friday	. 8 .		19 .		
Saturday	16				
Sunday					
	April		May		June
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday		•			
Enter-PF1P	F2PF3-	PF4PF5-	PF6PF7	PF8PF9	PF10PF11PF12
Help	End	Day	Up	Down	

You can enter any valid year in the Year field in the header section of the screen to display the execution history for the specified year.

2. Press PF8 (Down) to display the next half-year and PF7 (Up) to display the previous half-year. You can also use these PF keys to change to the previous or following year.

If no history data exist for a given year, an error message is issued.

### **Displaying Execution History for a Particular Day**

- To display more information for a particular day
- If Entire Operations runs online under OS/390: Place the cursor on the appropriate day and press PF4 (Day).
- Else:

Press PF4 (Day). A window opens. Enter the appropriate day and press Enter.

A screen appears with the detailed execution history for one day:

19.02.00 Owner SN	*** ENTIRE OPER Network Sta	RATIONS 3.2.1 *** art History		11:07:06 k DEMO-NET e 11.07.95
121 (Network)	Date Time 11.07.95 08:54:43 11.07.95 09:50:27 11.07.95 10:50:00	Run Job	Date	Time

This screen displays all starts of a network for a selected date with run numbers and start times. Single job starts contain the job name.

When a whole network was activated, <Network> appears.

### **Column Headings: Network Start History**

The following table explains the column headings for the data listed on the Network Start History screen:

Column	Description
Run	Run number of this start.
Job	Job name, if this is a single-job start.
Date	Date of the network start.
Time	Starting time of the network start.

# **Job Maintenance - Overview**

This section covers the following topics:

- Job Maintenance Overview
- Job Maintenance Facility
- Input Condition Maintenance
- Defining Prerequisite Resources

## **Job Maintenance Overview**

This section explains the Job Maintenance facility and how to:

- Define different job types and job dependencies
- Create and use JCL
- Create online documentation for jobs
- Schedule a job
- Define input conditions
- Specify resources

When differences in procedure between the BS2000/OSD, OS/390 and VSE/ESA operating systems occur, they are explained separately.

# **Job Maintenance Facility**

Jobs are always part of a job network.

### To invoke the Job Maintenance facility

- 1. Display the Network Maintenance screen by selecting the Network and Job Maintenance option on the Main Menu. (See Section Network Maintenance).
- 2. On the Network Maintenance screen, type **L** in the line command field of the network for which you wish to define or modify jobs. Press Enter.

The Job Maintenance screen appears:

13.08.00 Owner EXAMPLE	*** Entire Operations 3.  Job Maintenance	2.1 *** Network	
Cmd C R PU Job	Type Description	File or Library	Member
_ JOB-01	MAC Where it all starts	EOR-T212	E60-M02
_ C1 P JOB-012	MAC Depending on Job-01	EOR-T212	E60-M01
_ C1 JOB-013	MAC Depending on JOB-012	EOR-T212	E60-M01
_ G C1 JOB-014	MAC Depending on JOB-013	EOR-T212	E60-M01
_ C1 JOB-015	DUM Depending on JOB-014		
_ C1 JOB-019	MAC Depending on JOB-01	EOR-T212	E60-M01
_ C2 JOB-02	MAC Dep. JOB-15, JOB-19	EOR-T212	E60-M02
_ C1 JOB-03	NAT Depending on JOB-02	EOR-T212	E60-P01
_ C1 JOB-04	MAC Depending on JOB-03	EOR-T212	E60-M01
_ C1 JOB-05	DUM Depending on JOB-04		
_ C1 JOB-06	MAC Where it all ends	EOR-T212	E60-M02
J07	MAC	EOR-T212	E60-M03
******	****** Bottom of Data	******	*****
A Depend. C Copy D De	lete E Edit G Pregen. I In	nput Cond. J JCL L Res	sources
M Modify O EOJ Chk +	Act P Prose R Activate	S Scheduling Parms	U Add.Log
Command =>			
Enter-PF1PF2PF3-	PF4PF5PF6PF7	PF8PF9PF10PF	11PF12
Help Add End	Save Up	Down	Menu

The main information section of this screen displays all jobs defined for the selected network.

### **Column Headings: Job Maintenance**

The following table explains the column headings for the data listed on the Job Maintenance screen:

Column	Description		
Cmd	One-character line command input field. Possible options are listed in the command section of the screen (see Line Commands: Job Maintenance).		
(no heading)	The	ere is another column without a heading between C and R. Possible values:	
	D	This is a dummy job. For more information, see the subsection Job Types.	
	G	Pregenerated JCL exists (see line command G).	
	P	(Started tasks) This job ends a started task.	
	R This is a recovery job. For more information, see the subsection Defining Recovery Action. in Section End-of-Job Checking and Actions.		
С	Sui	mmary of input conditions. For more than 9 conditions, a plus sign + appears here.	
R	Sui	mmary of resources. For more than 9 resources, a plus sign + appears here.	
P	If a description is available for the job listed, P appears here.		
U	If a	additional logging has been defined for the job listed, U appears here.	
Job	User-defined job name. Use an asterisk * as wildcard to enter selection criteria for displaying job name.		
Туре	Job type. You can find a detailed description of the job types. See also the subsection Adding/Modifying a Job Definition.		
Description	A short description of the job.		
File or Library	Physical storage of JCL according to job type.		
Member	The member which contains the JCL. This applies for:		
		Natural source PDS (OS/390) LIB (OS/390) PAN (OS/390) LMS (BS2000/OSD) VSE/ESA (VSE/ESA) member in VSE/ESA sublib RDR (VSE/ESA) member in VSE/ESA POWER RDR queue.	

## **Line Commands: Job Maintenance**

You can perform several functions on any job listed on the Job Maintenance screen using line commands. The following line commands are available:

Cmd	Description
A	Display job dependencies (previous and following jobs). Includes connection and disconnection of jobs.
С	Copy a job definition, including all associated definitions, to a new job.
D	Delete a job definition, including its input conditions and end-of-job checking and actions.
Е	Edit JCL or Natural program (Editor).
G	Pregenerate active JCL.
I	Define input conditions for the job.
J	Define a job control. in Section Active Job Networks.
L	Specify resources for the job.
M	Modify existing job definition.
О	Define end-of-job checking and actions.
P	Invoke the Editor to write an online description of the job.
R	Activate a single job.
S	Define scheduling parameters for the job.
U	Define job information to be logged.

The following subsections give detailed descriptions of the functions you can perform on each job using line commands and PF keys.

# **Adding a Job Definition**

## To add a job definition

- 1. Press PF2 (Add) from the Job Maintenance screen.
- 2. The following window opens:

```
!
                Job Definition (Master)
                                              ! --
 ! 2
                                              ! 1
  Execution Node ==> 146 MVS/ESA
                                              ! 1
                                              ! 1
! Special Type ==> _
                   Symbol Table ==> EXAM-ST1__
Suffix Symbol ==> _____
                                              !
! Restartable ==> _
                                            _ ! 1
                     Escape Characters: Activation ==> § ! 2
!
                                 Submit ==> $ ! 1
! Enter-PF1---PF2--PF3--PF4---PF5---PF6---PF7-----------PF9--PF10---PF12- !
! Help Add End Edit Save Spec Symb JCL Copy Menu ! 2
+----- 3
Help End Edit Save Spec Symb Impo
Command =>
nter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
  Help Add End Save Up Down
```

3. Enter values for the fields described on the following pages.

#### Note:

Depending on your operating system, you may have to define additional parameters. Press PF6 (Specials) to open a window with the additional parameters. For further information, see the subsection Operating-System-Dependent Job Definitions.

### **Field Descriptions: Master Job Definition**

The input fields of the Master Job Definition window are described in the following table:

Field	Description			
Job Name	_	Job name. <b>Entire Operations</b> recognizes a job by this name. It can, but need not be the same name as on the JCL job card (the operating system recognizes a job by its job card name).		
Mod	User ID, date and time of la	User ID, date and time of last modification of the job definition.		
<	Note:	Note:  OS/390 and related operating systems:  If a security system like RACF is installed on the execution node, the Monitor submits the job with the security ID of the user who last modified the job definition.		
Description	Short description of the job. This text appears in the list of jobs on the Job Maintenance screen. You can add a longer description of the job using the Editor (see the subsection Creating Online Documentation for Jobs).			
Job Type	The job type as defined to <b>Entire Operations</b> . For further information, see the subsection Job Types.			

Execution Node	the job network definition. Yo	de specified here. The default is the value specified in u can enter a different node for the job here. The name is after the node number. <b>Only currently active nodes</b>	
Symbol Table	Name of symbol table to be referenced for substitution of variables in the dynamic JCL of a MAC-type or JOB-type job. Enter * and press Enter to list available symbol tables for network owner. Select a name from the list. Alternatively, you can enter a new name and press PF7 (Symb) to define a new symbol table. See Displaying and Modifying a Master Symbol Table in Section Symbols for more.		
Special Type	Leave this field <b>blank</b> , if this i	s a normal job or enter one of the following values:	
	С	Cyclic execution.  Each job type can be provided with this attribute.  (This is a replacement and extension of the CYC job type)  If C is defined, then a cyclic interval must be defined in the job schedule parameters. This is checked during job activation and before job start.	
	D	Execution as a dummy job. This allows you to prevent the job from being executed without having to delete the definition. You can also set this type in an active job before a repetition. If this value is deleted in an active job, then the active JCL is generated, provided that it is already present. However, this does not have a resubmission of the job as a consequence. To resubmit the job, you are to use the line command R in the list of active jobs in this case as well. See Resubmitting an Active Job in Section Active Job Networks.	
	P	Stops a started task (only for job type STC).	
	R	For a recovery job. You must also use R for jobs that are later activated with the job import API NOPUJIXN.  Note:  Recovery jobs are not activated during a normal job network activation. They are activated only if they are defined for another job and if a certain event makes a recovery necessary.	
Escape Act	•	This is the activation escape character. It is a prefix for Natural code lines and symbols to be replaced at activation time. If you change this character, dynamic JCL could become invalid.	
Sub	_	character. It is a prefix for symbols to be replaced at ge this character, dynamic JCL could become invalid.	

	BS2000/OSD:	The default escape characters must be set to ^ and ' respectively (see the subsection Symbol Replacement in Section System Overview).	
Restartable	The job can be restarted automatic	ally. Possible values:	
	Y	The job is to be restarted without any recovery after a system breakdown.	
	N	No automatic restart after a system breakdown.	
	R	BS2000/OSD: /RESTART when job is repeated. Sysout files are not renamed.	
	Note:	BS2000/OSD /RESTART: Automatic sysout rerouting can be delayed with the line: /REMARK EOR-SYSOUT-DIRECT=LATER immediately after the /LOGON command. Later, the line: /REMARK EOR-SYSOUT-DIRECT=NOW must appear. From here on, the sysout will be rerouted. This allows user-defined actions before using a sysout file.	
	Criteria for automatic job restart:		
	- OS/390: BS2000/OSD:	This field must be marked Y. Job submission time must be before last IPL time and the job must not be terminated. MonJV must contain \$R. System session number at job check time must be different from session number at submission time.	
Suffix Symbol (optional)	If the job is to be activated multiply in parallel, then this field must contain a symbol name which is in the defined symbol table. The symbol itself must contain the suffixes to be appended to active job names and output conditions. Sum of the lengths (prefix+suffix) must not exceed the maximum field lengths for job names or conditions. For example, if the master job name is PARA, and the symbol contains 001, 003, 012, then the active jobs PARA001, PARA003 and PARA012 are created. If the Suffix Symbol value is not defined in a network and the network has a caller (if it is a sub-network), then the search for the Suffix Symbol is performed upward up to the highest level. If the Suffix Symbol does not contain any values, the job is activated as a temporary dummy job. For information about the definition of multiple symbol values, see Multiple Symbol Values in Section Symbols. For information about the assignment of multiple symbol values to Suffix Symbol, see the subsection Symbol Replacement with Multiple Symbol Values.		
JCL Location	Type of JCL source. In the Network whole network. See the subsection	rk Definition, this field serves as a default for the JCL Locations.	
JCL Node	-	nis node. It is submitted on the execution node. The job network definition and can be overridden here.	

Dsname/Natlib	Location of JCL according to job type.
	For Natural programs and dynamic JCL (location NAT): The Natural library in which the program or variable JCL resides. The Natural library must be located on the FUSER system file of Entire Operations and cannot have the same name as the Entire Operations library.
	For VSE/ESA: Library and sublib, concatenated by a period (.).
	For all others: the file name.
	To list file/library names, use an asterisk * as wildcard. For example, enter XA* in this field and press Enter to list all file/library names beginning with the characters XA. To display a full list, enter only the asterisk in this field and press Enter. You can select the required file/library from this list. You can also delete the file/library from this list.
	<b>For UNIX:</b> UNIX is case-sensitive (upper/lower case). Environment variables and symbols can be used in the name.
Member	Name of member which contains JCL (if there is JCL). List member names using the asterisk * as wildcard. For example, enter XA* in the member field and press Enter to list all member names beginning with the characters XA. To display a full list, enter only the asterisk in the member field and press Enter. You can select the required member from this list. You can also delete the member from this list.
	You can also enter a non-existent member in this field, for example, if no JCL has yet been defined for the job. <b>Entire Operations</b> notifies you once but accepts the member name in the assumption that a member with this name will be created.
	Before activating a network and before submitting a job, <b>Entire Operations</b> checks for the existence of a member defined for it. If it does not exist, an error message is issued.
Volser	Volume serial number of the file. Required only if the file is not cataloged. (OS/390 only).
Password	The file password, if file is password-protected.

# **Job Types**

An Entire Operations job has a wider meaning than a job in terms of the operating system.

You can define the following job types to **Entire Operations**:

Job Type Description
----------------------

CYC	Cyclic jobs: A cyclic job is executed in each active phase of the Entire Operations Monitor. A cyclic job has access to almost all operating system functions (using Entire System Server technology). A cyclic job can thus be used as a permanent watch job.  CYC type jobs have no executionary part. Actions can be carried out in an end-of-job action routine, for instance (see Defining End-of-Job Action User Routine in Section End-of-Job Checking and Actions).  For new developments it is recommended not to use this job type any longer. Instead of that, the special type C (cyclic execution) can be defined in the job definition. This
	attribute can be used for all job types. Thus, it is also possible to cyclically submit normal jobs or sub-networks.  The job type DUM with the special type C functionally corresponds to the job type CYC.
DUM	<b>Dummy jobs:</b> A dummy job has no JCL and is not submitted to the operating system. You can use dummy jobs to set input conditions with a time range, to provide a time window for other jobs or as placeholders for future or seldom used jobs, etc. A manual job can be defined as a dummy type job. You can define an 'estimated' running time for a dummy job (see the field Estimated Elapsed Time). The dummy job is then 'executed' for exactly this amount of time without burdening the system.
JOB	Standard operating system jobs: This includes all jobs with their own JCL. JOB-type jobs are submitted as batch jobs. The JCL of JOB-type jobs can contain symbols as placeholders for variables defined in the symbol table specified for the job. These symbols are replaced by their current value at job activation or at job submission time. (See the subsection Dynamic JCL Generation in Section System Overview.
MAC	Jobs with dynamically generated JCL: The JCL of MAC-type jobs is written using the Entire Operations MACRO facility, which allows the use of variables anywhere in the JCL. Dynamic generation of JCL refers to the automatic substitution of these variables with their current values either when the job network is activated or when the job is submitted. The same job can thus have different job cards for different activation. (See the subsection Importing JCL to Natural Source and the subsection Dynamic JCL Generation in Section System Overview).
NAT	Natural programs: These are Natural batch programs which can be defined to Entire Operations as a job within a network. Execution of this job type consists of the Entire Operations Monitor invoking the program. They have no JCL (see also the subsection User Routines in Section System Overview).
NET	Sub-networks: This job type enables you to execute a complete network within a main network. The concept of sub-networks is described in detail in the subsection Sub-networks in Section System Overview. See Defining a Sub-network for how to define a sub-network.
STC (OS/390, VSE/ESA)	Started tasks: A started task is a special type of batch job on some operating systems. Started tasks have static JCL which can reside in any PROCLIB (OS/390) or POWER RDR (VSE/ESA).  Entire Operations can activate and process started tasks like any other job type.

R3	Job in the SAP R/3 runtime system: Entire Operations uses a script language as job control for the definition of SAP R/3 batch processing.
SRV	Windows NT Services: With this job type, you can define services under Windows NT. A service must first be defined in Windows NT before it can be started.

### **Special PF Keys: Master Job Definition**

When you have entered values for the fields in the Master Job Definition window, you can press one of the PF keys below to proceed in any of the following ways:

Key	Name	Function	
PF4	Edit	Define JCL or a Natural program, depending on job type. (see the subsection Editing JCL or Natural Programs)	
PF6	Spec	Define special parameters for operating-system-dependent job definitions.  Define a sub-network.	
PF7	Symb	Display the symbol table specified in the Symbol Table field. You can define or modify it.	
PF8	Impo	Import JCL from a PDS to a Natural library. (see the subsection Importing JCL to Natural Source)	
PF9	JCL	Define the JCL. This action is required for all job types with JCL.	
PF10	Copy	Copy an existing job definition to the new job definition.	

When you have finished processing the job definition, you can:

- PF5 (Save) to save the job definition and then press PF3 (End) to return to the Job Maintenance screen, or
- press PF3 (End) to return to the Job Maintenance screen without saving the job definition.

## **Modifying a Job Definition**

## To modify an existing job definition

- 1. Type **M** in the line command field of the selected job.
- 2. Press Enter.
- 3. The Master Job Definition window opens, containing the current values for the job. You can modify any name, number, JCL and/or symbol table.
- 4. Press PF5 (Save) to save all changes.
- 5. Press PF3 (End) to return to the Job Maintenance screen.

## **JCL Locations**

Entire Operations offers a wide variety of possible locations for your original (master) job control.

The following types of physical storage for JCL can be defined in the JCL Location field of the Master Job Definition window:

JCL Location	<b>Operating System</b>	Description
(blank)		None (needs no JCL)
BS2	BS2000/OSD	SAM or ISAM file
LIB	OS/390	Librarian
LMS	BS2000/OSD	LMS library
NAT		Natural source
PDS	OS/390	Partitioned dataset (file)
PRC	BS2000/OSD	Callable procedure
RDR	VSE/ESA	VSE/ESA Reader Queue, for STC
VSE	VSE/ESA	VSE/ESA Sublib
TXT	UNIX	Text file

The NAT location is available everywhere. Other locations are restricted to the operating systems shown.

## **Restrictions for Job Types**

- NAT and MAC-type jobs **must** reside in the NAT location.
- DUM and CYC-type jobs cannot have a JCL location.

The existence of the defined JCL is tested during definition. If JCL cannot be found, a warning message appears in the Master Job Definition window.

## Remote JCL Storage

JCL can be stored on a different machine and even on a different operating system from the execution machine and execution operating system.

### **Symbol Replacement**

Simple symbol replacement is possible for all types of JCL locations.

#### JCL Location PRC: BS2000/OSD DO Procedure

If this location is defined, **Entire Operations** generates a BS2000/OSD Enter job in the active JCL which invokes the procedure.

The following rules apply:

- The BS2000/OSD job name is taken from the **Entire Operations** job name. If the name is longer than 8 characters, it is abbreviated to 8.
- SDF statements (CALL-PROC) are used.
- The symbol table defined for the job must contain all DO procedure parameters. The symbol values are used for the procedure call.
- Positional and keyword parameters are supported.
- Number and names of the parameters are automatically taken from the procedure (PROC / BEGIN-PROC statement).

#### JCL Frame for BS2000/OSD DO Procedure

A user-defined JCL frame can be used for BS2000/OSD DO procedures. It must be stored with the name PRCFRAME in the SYSEOR library. If it cannot be found, a standard frame will be generated by **Entire Operations**.

#### **Special Statements**

Statement	Explanation
#ESC-FRAME <c></c>	Defines the escape character for symbol replacement valid for the JCL frame. This statement must come first and is <b>required</b> .
#CALL-PROC	The procedure call (/CALL-PROC) is generated here.

#### **Example**

```
#ESC-FRAME §
/.SN§P-RUN LOGON SN,1
/REMARK === PRC FRAME EXAMPLE
/REMARK §AAAA YYYYYYYYYYY
#CALL-PROC
/STA L
§BBBB
/LOGOFF
```

#### Notes:

- 1. All symbols used by the JCL frame must be contained in the job's active symbol table. As usual, the active symbol table must also contain all symbols for the procedure call.
- 2. If a symbol does not exist, the job activation is cancelled.

## **Operating-System-Dependent Job Definitions**

Some (execution or JCL) operating systems or JCL locations may require some additional definitions.

These can be invoked with PF6 (Spec) from the Master Job Definition window.

Depending on the operating system, a special window opens or the message Function not available for ... appears.

### **BS2000/OSD Specials**

#### To define special parameters for BS2000/OSD jobs

• Press PF6 (Spec) from the Master Job Definition window.

The following window opens:

```
Master Job Definition
                                                              ! -
                      BS2000 Specials, Execution
                                                              ! r
           Owner ==> EXAMPLE Job Type ==> MAC
Network ==> B60-FLOW Exec Node ==> 31 BS2000
              Job ==> JOB-01
                                                              !
                                                              !
 ! Default User ID ==> SN_____
                                                              !
   Submit User ID ==> SN_____ Submit Password ==>
 !
                                                              !
    Account Number ==> _____ Sysout User ID ==> _____
 !
 ! BS2000 Job Class ==> _____ Sysout Cat ID ==> ____
! Share Sysout ==> N Collect Syslst ==> N
 !
      MonJV ==> ___
 ! Password ==>
Help End Save
nter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add End Save Up Down
```

## Field Descriptions: BS2000/OSD Specials

The input fields of the BS2000/OSD Specials window are described in the following table:

Field	Description
BS2000/OSD Def User ID	Enter a valid logon User ID defined for BS2000/OSD. This ID has no meaning for other operating systems. Unqualified file and job variable names in this job definition are prefixed with this BS2000/OSD user ID.
	<b>Note:</b> The User ID TSOS can be defined <b>only</b> if the user defining the ID is working under TSOS.
Submit Userid	Jobs in BS2000/OSD are submitted under this User ID by the <b>Entire Operations</b> monitor. This ID has no meaning for other operating systems.
	Notes: The User ID TSOS can be defined <b>only</b> if the user defining the ID is working under TSOS.  In "Monitor standard values/submit user type" in the access control system, certain checks of the submit user ID can be defined. See also the Entire Operations Administration Documentation, field Submit Security User Type in subsection Monitor Defaults in Section System Administrator Services.  If this field is left blank, then the <b>Default User ID</b> is inserted at job activation.

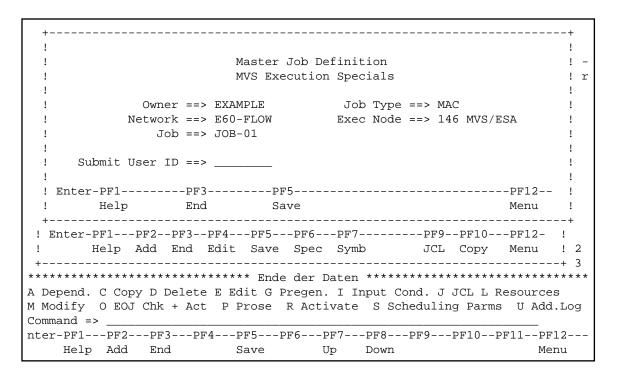
Account Number	Enter an account number to be used for the BS2000/OSD submit user ID. If you leave this field <b>blank</b> , the account number is taken automatically from the BS2000/OSD Join Entry (only if NOP Monitor is under TSOS or under the same user ID as the job). Symbol replacement is performed in this field, if the activation escape character is used.
BS2000/OSD Job Class	Enter a valid, defined BS2000/OSD job class for job submission. Symbol replacement is performed in this field, if the activation escape character is used.
Share Sysout	Make BS2000/OSD Sysout File shareable. If you enter Y here, the internal temporary sysout file can be accessed from other BS2000/OSD user IDs.
Submit Password	Enter the password for job submission. (Required only for BS2000/OSD Password Encryption).
Sysout Userid	Enter the User ID under which internal sysout files are created by <b>Entire Operations</b> . If you leave this field blank, the Submit Userid is used.
Sysout Catid	Enter the sysout catalog ID. This is the catalog ID under which internal sysout files are created by <b>Entire Operations</b> . This field is meaningful only if you specify a Sysout Userid different from the Submit Userid.
Collect Syslst	If you enter Y here, and if the job contains a SYSLST assignment (like /SYSFILE SYSLST= or /ASSIGN-SYSLIST TO-FILE=), the SYSLST output is appended to the sysout collection by <b>Entire Operations</b> . The SYSLST output is then also available in the sysout online display.
LMS Member for	This field can be used specially for long member names. If the JCL location is LMS and you leave this field <b>blank</b> , the short member field is used.
LMS Member Version	Enter the version of the specified LMS member. This must be exactly the same as given in LMS itself. Leading zeroes must be specified in the same way.
Type	Enter the LMS member type. Possible values: S, J, D, X
MonJV	Enter the name of the BS2000/OSD Monitor Job Variable to be used at job submission. If you leave this <b>blank</b> , <b>Entire Operations</b> generates an internal unique name, if product JOB VARIABLES is available.
Password	Enter the password for the defined Job Variable. Only alphanumeric passwords are supported.

## OS/390 Specials

## To define OS/390-specific parameters

• Press PF6 (Spec) in the Master Job Definition window.

The following window appears:



The input field has the following meaning:

Field	Description
Submit	In OS/390, the <b>Entire Operations</b> Monitor starts jobs under this user ID. You can only
User ID	define this user ID if you are logged on to the executing node with the same user ID.
	Default: If this field is empty, the user ID from the last submit user ID change is taken.
	In "Monitor standard values/job start user type" in the access control system, certain checks of
	the job start user ID can be defined. See also the Entire Operations Administration
	Documentation, field Submit Security User Type in subsection Monitor Defaults in Section
	System Administrator Services.

## **DOS/VSE Specials**

- To define special parameters for VSE/ESA jobs residing in VSE/ESA libraries
  - Press **PF6** (Spec) from the Master Job Definition window.
  - The following window opens:

## Field Descriptions: Special Definitions for DOS/VSE

The input fields of the Special Definitions for DOS/VSE window are described in the following table:

Field	Description
Library	Enter the name of the VSE/ESA library within the selected file.
Sublib	Enter the name of the VSE/ESA sublibrary within the selected file. You can use an asterisk * as wildcard to open a selection window.
Member	Enter the name of the member where the JCL for the job resides. You can use an asterisk * as wildcard to open a selection window.
Member Type	Enter the member type of the VSE/ESA library.
Volser	Enter the volume serial number of the file where the JCL resides. This is a required parameter for VSE/ESA.
VSAM Catalog	Enter the name of the VSAM catalog for the selected file.

## **UNIX and Windows NT Specials**

### To define special parameters for UNIX jobs

• Press PF6 (Spec) from the Master Job Definition window.

The following screen appears:

```
Job Definition (Master)
                                                  ! --
                                                  ! er
                   Master Job Definition
                                                  !
              UNIX and Windows NT Specials, Execution
                                                  !
                                                  !
                             Job Type ==> JOB
          Owner ==> SN
                                                  !
         ! 01
           Job ==> APO1
     Submit User ID ==> sn_
     Submit Group ==> SAG-HQ_____
 M Modify O EOJ Chk + Act P Prose R Activate S Scheduling Parms U Add.Log
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
   Help Add End Save Up Down
```

The input fields have the following meaning:

Field	Description
Submit User ID	The Entire Operations Monitor will set the user ID of the shell script to this value. The user ID will be converted to lower case automatically.  In "Monitor standard values/job start user type" in the access control system, certain checks of the job start user ID can be defined. See also the Entire Operations Administration Documentation, field Submit Security User Type in subsection Monitor Defaults in Section System Administrator Services.
Submit Group	If this field is empty, the user's default UNIX group (from /etc/passwd) is used. Otherwise, this field must contain one of the UNIX groups, which is visible in the output of the UNIX groups command.

## **Defining a Sub-network**

The NET-type job allows you to define a whole network as a job. The sub-network must already be defined. It must have an input condition NET-BEGIN and an output condition NET-END. The same sub-network can be defined in different jobs of the main network.

The sub-network can be **activated** together with the calling network (or job of the NET type) or at the moment of the NET type job start. For a detailed description, see Sub-networks in Section System Overview.

Sub-networks are assigned their own run numbers.

To define a sub-network

• Press PF6 (Spec) from the Master Job Definition window.

The following window opens:

```
! +-----
                  Job: Sub-Network Definition
 1 1
 !! Owner REQUEST Network P188021 Job J2 Run
 !! Description ==> job type NET
    Sub-Network Owner ==> REQUEST_
    Sub-Network Name ==> P188021A__ Subnet Activation Mode ==> A
    Sub-Network Run ==>
                               Append Mult. Suffix ==> _
                                                       !
    Entry Condition ==> NET-BEGIN
    Exit Condition ==> NET-END
  ! Enter-PF1-----PF3------PF5-----
        Help End
                        Save
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add End Save Up
                                  Down
```

The basics of sub-networks are described in the subsection Sub-networks in Section System Overview.

#### **Fields: Sub-network Definition**

Field Name	Description
Sub-network Owner	Owner of the existing sub-network.
Sub-network Name	Name of the existing sub-network.
Subnet Activation Mode	A (or blank) at the moment of the activation of the calling job  S at the moment of the start of the calling job  D use global default values (see Entire Operations 3.2.1 Defaults in the Entire Operations Installation and Administration Documentation)  For a detailed description of this function, see the subsection Sub-networks in Section System Overview.
Append suffix	Y Append the suffix of the calling multiple job to the name of the sub-network. The resulting name must not have more than 10 characters.  else The name of the active job network is the same as the name of the master job network. Uniqueness is ensured by different run numbers.

#### **Notes:**

- 1. If the condition NET-END-NOTOK is found together with NET-END, the calling job is set to the status **not ok**.
- 2. NET-type jobs can use all kinds of prerequisite checks and can have all kinds of end-of-job actions.
- 3. The scheduling parameters of a NET-type job are passed on to the sub-network. See the subsection Scheduling a Job.

### Define a JCL for a Job

#### To add a JCL definition

- 1. press PF9 (see Special PF Keys: Master Job Definition) in the Master Job Definition.
- 2. Enter the line command J (see Line Commands: Job Maintenance) in this document.

The following window appears:

```
19.08.00 *** Entire Operations 3.2.1 *** 11:16:27
Owner EXAMPLE Job Maintenance Network E60-FLOW
                                             11:16:27
 +----+
                Job: JCL Definition (Master)
                                                 !
 !
                                                 ! 2
                          Mod ==> SN 27.07.00 13:58 ! 1
 ! Job Name ==> JOB-01
 ! Description ==> Where it all starts
                                                ! 1
 ! Job Type ==> MAC
 ! Execution Node ==> 146 MVS/ESA Symbol Table ==> EXAM-ST1
                                                !
 !
                                                ! 1
 ! JCL Location ==> NAT
 ! JCL Node ==> 146 MVS/ESA
                                                ! 1
 ! File/NatLib ==> EOR-T212___
                                                ! 1
 ! Member ==> E60-M02_
 ! VolSer
           ==> ____ (if not catlgd) Password ==>
 Help End Edit Save Spec Symb Impo Menu!
 +-----+ q
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF8---PF9---PF10--PF11--PF12---
   Help Add End Save Up Down
                                               Menu
```

3. Enter the values for the fields described below.

#### **Fields: Master JCL Definition**

Meaning of the fields:

Field	Description
JCL Location	Type of JCL source. In a network definition, this field serves as default for the entire network. See also the subsection JCL Locations.
JCL Node	The JCL for the job is read from this node. The job is started on the executing node. The default is the value specified in the job network definition, which can be overwritten here.
File/Natlib	Storage type of the JCL corresponding to the job type.
	For <b>Natural programs and dynamic JCL</b> (storage type NAT): the Natural library where the program or the variable JCL resides. The Natural library must reside in the <b>Entire Operations</b> FUSER system file and must not have the same name as the <b>Entire Operations</b> library.
	For <b>VSE/ESA</b> : library and sub-library associated by a point (.).
	For <b>all others</b> : the file name.
	You can list the file or library names by entering "*" as a wildcard character. To list, for example, all file or library names beginning with XA, enter XA* in this field and press Enter. To get the complete list, just enter "*" in the field and press Enter.
	You can select the desired library or file from this list. You can also delete the library or file from the list.
	For <b>UNIX</b> : Be aware of upper and lower case. You may use environment variables and symbols within names.
Member	Name of the member containing the JCL (provided there is a JCL).
	You can list the member names by entering "*" as a wildcard character. To list, for example, all member names beginning with XA, enter XA* in this field and press Enter. To get the complete list, just enter "*" in the field and press Enter. You can select the desired member from this list. You can also delete the member from the list.
	You can also enter the name of a non-existing member, if, for example, no JCL has yet been defined for the job. <b>Entire Operations</b> tells you once, but but accepts the member name assuming a member with this name will be created.
	Before activating a network and before starting a job, <b>Entire Operations</b> checks whether a member has been defined. If there is no member, an error message is issued.
Volser	VOLSER name of the file. Only required if the file has not been cataloged (OS/390 only).
Password	The file password if the file has been protected by a password.

## **Special PF Keys: Master JCL Definition**

After having entered these objects in the Job JCL Definition (Master) window, you can press one of the PF keys to continue in one of the following ways:

PF Key	Name	Function
PF6	Spec	Define special parameters for operating system specific job definitions.  Define a sub-network.
PF7	Symb	Display the symbol table specified in the Symbol Table field. You can define or change the symbol table.
PF8	Impor	Import the job control (only master definitions). Allows to convert the JCL from an operating system file format (for example PDS, TXT) to Natural source format or a macro language format.

## **JCL Location**

**Entire Operations** offers a broad range of possible locations for its original (master) job control. You can specify the following physical locations for JCL in the field JCL Location of the Job JCL Definition (Master) window:

JCL Location	Operating system	Description
(blank)		None (no JCL required)
BS2	BS2000/OSD	SAM or ISAM file
LIB	OS/390	Librarian
LMS	BS2000	LMS library
NAT		Natural source
PDS	OS/390	Partitioned file
PRC	BS2000/OSD	Callable procedure
RDR	VSE/ESA	VSE/ESA Reader Queue, for STC
VSE	VSE/ESA	VSE/ESA partial library
TXT	UNIX, Windows NT	Text file

Location NAT is available everywhere.

Other locations are restricted to the specified operating systems.

## **Restrictions for Job Types**

- Jobs of type NAT and MAC **must** be of location NAT.
- Jobs of type DUM and CYC **must not be** of any JCL location.

During definition, it is checked whether the defined JCL exists at all.

If the JCL cannot be found, a warning appears in the Job JCL Definition (Master) window.

#### **Location on another Node**

The JCL can be saved on another machine, not identical with the executing machine and even on another operating system, not identical with the executing operating system.

### **Replacing Symbols**

In all JCL locations, you can easily replace symbols.

#### JCL Location PRC: BS2000/OSD DO Procedure

If this location has been defined, **Entire Operations** generates a BS2000/OSD Enter job in the active JCL calling this procedure.

The following rules are applied:

- The BS2000/OSD job name adopts the **Entire Operations** job name and if it is longer than 8 characters, it cuts the name to 8 characters.
- SDF statements (CALL-PROC) are used.
- The symbol table for which the job has been defined must contain all parameters of the DO procedure. The symbol values are used for calling the procedure.
- Positional and keyword parameters are supported.
- The number and the name of the parameters are automatically retrieved from the procedure (PROC / BEGIN-PROC statement).

#### JCL Frames for BS2000/OSD DO Procedures

For DO procedures, a user-defined JCL frame can be used. It must be saved under the name PRCFRAME in library SYSEOR. If it is not found, **Entire Operations** generates a standard frame.

#### **Special Commands**

Command	Description
#ESC-FRAME <c></c>	For the JCL frame, defines the escape character to replace symbols. This command must be at the top and is <b>compulsory</b> .
#CALL-PROC	Here, the procedure call (/CALL-PROC) is generated.

#### **Example**

```
#ESC-FRAME §
/.SN§P-RUN LOGON SN,1
/REMARK === PRC FRAME EXAMPLE
/REMARK §AAAA YYYYYYYYYYY
#CALL-PROC
/STA L
§BBBB
/LOGOFF
```

#### **Notes:**

- 1. All symbols used in the JCL frame must be contained in the active symbol table of the job. The active symbol table must continue to contain all symbols for calling the procedure.
- 2. If a symbol does not exist, job activation is discontinued.

### **BS2000/OSD Specials**

#### To define BS2000/OSD-specific parameters

• Press PF6 (Spec) in the Job JCL Definition (Master) window.

The following window appears:

The meaning of the input fields:

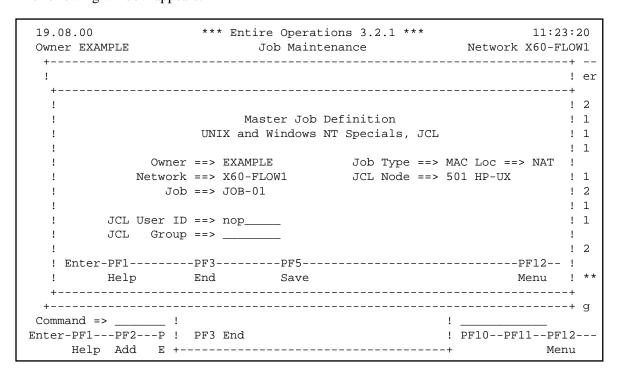
Field	Description
JCL User ID	If not blank, the JCL is loaded with the rights of this BS2000/OSD user ID. It can be overwritten by specific definitions.  TSOS may only be defined if the user is logged on to TSOS.  Default: The user ID from the fully qualified file name. (BS2000/OSD only)  If left blank, then the default User ID (see Field Descriptions: BS2000/OSD Specials) is inserted, when the job is activated.
LMS Member for	This field can be used specially for long member names. If the JCL location is LMS and you leave this field <b>blank</b> , the short member field is used. ( <b>BS2000/OSD only</b> )
LMS Member Version	Enter the version of the specified LMS member. This must be exactly the same as given in LMS itself. Leading zeroes must be specified in the same way. ( <b>BS2000/OSD only</b> )
Туре	<b>BS2000/OSD/LMS</b> : Enter the LMS member type. Possible values: S, J, D, X. <b>DOS/VSE</b> : Enter the member type of the VSE/ESA library.

### **UNIX and Windows NT Specials**

#### To define UNIX and Windows NT-specific parameters

• Press PF6 (Spec) in the Job JCL Definition (Master) window.

The following window appears:



The meaning of the input fields:

Field	Description
JCL User ID	The <b>Entire Operations</b> Monitor will load JCL of type TXT with the rights of this user ID.
JCL Group	If this field is left blank, the standard group of the UNIX user ID is used, as defined in /etc/passwd. Otherwise, this field must contain one of those groups issued by the UNIX command groups.
UNIX Group (optional)	If this field is left blank, the standard group of the UNIX user ID is used, as defined in /etc/passwd. Otherwise, this field must contain one of those groups issued by the UNIX command groups. This field is not relevant to Windows NT.

## **Importing JCL to Natural Source**

**Entire Operations** can read JCL from various origins. A facility is provided for copying JCL from other locations into a Natural library. If the required JCL should remain in its original location, the function described in this subsection must not be used.

#### Note:

JCL Location in Master Job Definition window must be set to NAT.

Importing JCL to a Natural library may be required for one of two reasons:

- Your job definition specifies JOB-type job with JCL location NAT and the required JCL is in any operating system file. This function copies the JCL into a Natural library unchanged;
- You wish to migrate standard JCL to Entire Operations' dynamic JCL format, when you define a MAC-type job and JCL location NAT. The parameter section for dynamic JCL generation is automatically inserted at the head of the otherwise unchanged JCL. The Natural source thus created can be modified to take full advantage of dynamic JCL such as parameter substitution, dynamic code generation, etc.

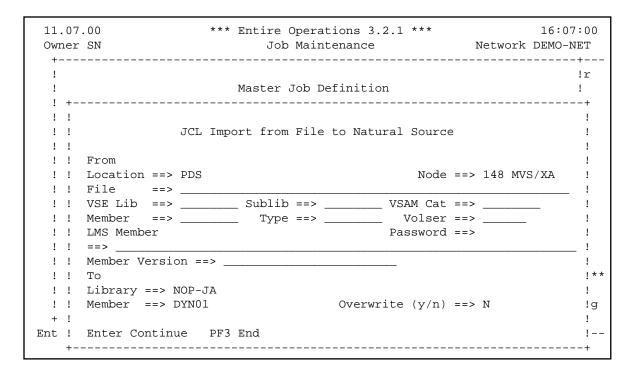
#### Note:

The Editor command MACRO is always required to compile dynamic JCL into internal code. It must be used after the import to make the MACRO-type JCL executable. The MACRO JCL can be tested with the Editor command TEST.

#### To invoke this function

1. Press PF8 (Impo) from the Master Job Definition window.

The following window opens:



## Field Descriptions: JCL Import from File to Natural Source

The input fields of the JCL Import from File to Natural Source window are described in the following table:

Field	Description		
From			
Location	Enter JCL location (see subsection JCL Locations).		
Node	Enter node of the file containing the JCL to be imported.		
File	Enter name of the file containing the JCL to be imported.		
VSE/ESA Lib	Enter the name of the VSE/ESA library within the selected file.		
Sublib	Enter the name of the VSE/ESA sublibrary within the selected file. You can use an asterisk * as wildcard to open a selection window.		
VSAM Catalog			
Member	Enter the name of the member where the JCL for the job resides. You can use an asterisk * as wildcard to open a selection window.		
Туре	<b>BS2000/OSD/LMS:</b> Enter the LMS member type. Possible values: S, J, D, X. <b>DOS/VSE:</b> Enter the member type of the VSE/ESA library.		
Volser	Enter the volume serial number of the file where the JCL resides. This is a <b>required parameter for VSE/ESA</b> .		
Password (optional)	You can enter a password here, if the file is password-protected. <b>BS2000/OSD:</b> Only the first 4 bytes are used as Read password (alphanumeric only).		
LMS Member	This field can be used specially for long member names. If the JCL location is LMS and you leave this field <b>blank</b> , the short member field is used. ( <b>BS2000/OSD only</b> )		
Member Version	Enter the version of the specified LMS member. This must be exactly the same as given in LMS itself. Leading zeroes must be specified in the same way. ( <b>BS2000/OSD only</b> )		
То			
Library	Enter name of library containing member in which the imported JCL is to be stored.		
Member	Enter name of member in which the imported JCL is to be stored.		
Overwrite (y/n)	Enter <b>y</b> (yes), if you want existing JCL in the specified member to be overwritten. Default is <b>n</b> (no): an existing member is not overwritten.		

- Enter the origin File and Member names in the fields under the heading From (enter Volser, only if the file is not cataloged).

  You can use an asterisk \* as wildcard to open a selection window with file names.
- Enter the target Natural Library and Member name in the fields under the heading To.
- Press Enter.
- If the target member **does not** already **exist**, the function is performed.

If the target member already **exists**:

- and you entered **y** for the Overwrite? option, the existing member is overwritten;
- and you entered **n** for the Overwrite? option, the member is not overwritten and the message appears:

Overwrite Option required for existing JCL

## **Job Dependencies**

The Job Maintenance facility allows you to see which jobs must run before a specific job can start, and which jobs run after it.

### To display job dependencies for a specific job

- 1. Type **A** in the line command input field of the selected job on the Job Maintenance screen.
- 2. Press Enter.

A window opens which contains 2 smaller windows on either side of the selected job name:

)wn	07.00 *** er SN			Operations 3. Maintenance			Network 1	BIG-1	
!									
!	Predecessors	J	ob	Dependencies	5	Succe	essors		
!	M Network Job			,		Output Cond	lition		
!	Input Condition					Network	Job	M	
!	_ BIG-1 JOB-013				=>	E60-J014-O			
!	E60-J013-O	=>				BIG-1	JOB-01!	5 _	
!	_	+-		+	-=>				
!		=> 0	W	SN				_	
!	_	N	W	BIG-1	=>				
!		=> J	ob	JOB-014				_	
!	_	+-		+	-=>				
!		=>						_	
!	_				=>				
!		=>						_	
!		+		4					
!	X Chain D Disconnect				X	Chain D Di	sconnect	t	
!	EnterPF1PF2	-PF3-		PF5		-PF7PF8			
!	Help Connect	End		Save		Up Down			

The selected job name and network name appear in the middle of the window. The Predecessors window on the left of the selected job contains the job and network names of the jobs that must run before the selected job can run. Directly beneath these are the linking conditions.

The Successors window on the right of the selected job contains the job and network names of the jobs for which the selected job is a prerequisite. Directly above these are the linking conditions.

You can scroll both lists by using PF7 (Up) and PF8 (Down).

## **Special PF Keys: Job Dependencies**

You can perform the following function from the Job Dependencies window using this PF key:

Key	Name	Function
PF2	Connect	Connect the job to a predecessor job. For the standard case, event Job OK.

### **Line Commands: Job Dependencies**

Use the following line commands to perform the described functions on any job displayed in the Job Dependencies window:

Cmd	Description
D	Disconnect the job from a predecessor or successor job.
X	Chain. Move the selected job into the center of the window and display its dependencies.

## **Displaying Job Dependencies**

- To display the dependencies of any job listed in the Predecessors or Successors window
  - 1. Mark it with any character **except D**.
  - 2. Press Enter.

The selected job appears in the middle of the window with its dependencies displayed in the smaller windows.

This feature allows you to trace job dependencies through whole networks and display cross-network job links.

#### Note:

An overview of job flow for the whole network is available from the Network Maintenance screen.

## **Connecting Jobs from the Same or Different Networks**

You can connect two jobs within the same or different networks without defining logical conditions for them by using the **Entire Operations** default condition.

## To do this

- Press PF2 (Connect) in the Job Dependencies window of the job you wish to connect.
- A window opens in which you can define a job which must precede the selected job:

m 	er SN 	Job Main	tenance 	N 	etwork BI	G-1 
	Predecessors	_	ndencies	Succe	ssors	
	M Network Job	+	+	output Cond	ition	
	Input Condition			Network	Job	M
	_ BIG-1 JOB-012		=> E	60-J013-O		
	E60-J012-O	=>		BIG-1	JOB-014	_
	_ BI +				+	
	E !				!	
	_ !	Job Conn	ection		!	
	!				!	
	_ ! from Owner:	SN	to Owner	: SN	!	
	! Network:	BIG-1	Network	: BIG-1	!	
			Jok		!	
	_ !				!	
	! PF3 End				1	
	X Ch +				+ect	
	EnterPF1PF2					
	Help Connect					

The identifiers of the selected job appear in the protected fields on the right in the window.

## **Field Descriptions: Job Connection**

The input fields in the window on the left have the following meaning:

Field	Description
from/ Owner	Enter owner of job to run as predecessor.
from/ Network	Enter network name of job to run as predecessor.
from/ Job	Enter name of job to run as predecessor.

**Entire Operations** automatically provides the default condition Job OK to link the two jobs. If the job defined as predecessor terminates NOT OK, the selected job cannot be submitted and **Entire Operations** issues a message with the pending condition.

This function is also useful to link jobs across networks. In this case, you should check the input condition reference of the successor job. Use a reference different from RUN.

#### Note:

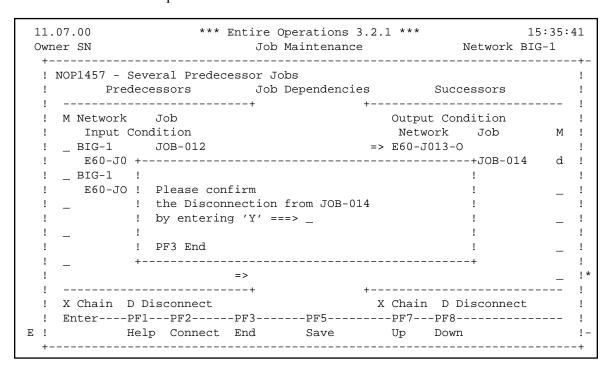
After connecting jobs within a network, a loop check is performed for the affected network. The same conditions apply as described in the subsection Checking for a Loop in a Job Network in Section Network Maintenance, with one exception: if a loop is detected in the job flow, no corresponding message appears.

## **Disconnecting Jobs**

### To disconnect two jobs linked by conditions

- 1. In the Job Dependencies window, type **D** in the line command input field of the second job in the sequence.
- 2. Press Enter.

A confirmation window opens:

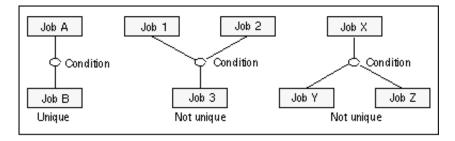


- 3. Enter **Y**.
- 4. Press Enter to perform the disconnection and close the window.

You can disconnect any two jobs linked by conditions using this function. There is no need to delete any defined conditions.

#### Note:

No disconnection is performed if the use of the conditions is not unique, for example:



#### Note:

Remove the condition definitions manually, if the link is not unique.

### Disconnection from a predecessor job

When disconnecting from a predecessor job, the linking input condition definition of the job displayed in the center (of the Job Dependencies window) is deleted.

### Disconnection from a successor job

When disconnecting from a successor job, the linking output condition definition of an event definition of the job displayed in the center (of the Job Dependencies window) is deleted.

#### Note:

The input condition definitions of the successor job remain unchanged.

After the output condition definition is deleted, the successor job could wait for a condition which is never satisfied.

#### **Restrictions:**

- A linking condition is deleted, only if it links no more than 2 jobs.
- If the **X** line command (Chain) was invoked for jobs in different networks, a disconnection of this type is not possible.

## **Copying a Job Definition**

When defining a new job, you can select an existing job definition as a model for the new job:

- 1. Type C in the line command field of the selected job in the Job Maintenance screen.
- 2. Press Enter.

A window opens with the job, network and owner name of the job you wish to copy, and an input field for a new job.

You can copy the job under another name from the same or another network defined for the same or another owner. You can only specify another owner if you are authorized to access its networks.

3. Press Enter to save the new definition and close the window.

The new job appears in the list of jobs in the Job Maintenance screen for the owner specified for the new job.

#### Note:

Copying a job does not include the definitions made at job level via the Job Maintenance screen, such as input conditions and end-of-job handling. Use the available line commands to create these definitions for each new job.

## Copying JCL of an Existing Job

- To copy the JCL of an existing job to the JCL definition
  - Invoke the Editor with PF4 and use the Editor command COPY.

## **Deleting a Job Definition**

### 📂 To delete a job definition

- 1. Type **D** in the line command line of the selected job in the Job Maintenance screen.
- 2. Press Enter.

A window opens in which **Entire Operations** asks you to confirm the deletion by entering the job name.

3. Press Enter to delete the job definition.

#### Note:

Deleting a job definition also deletes all definitions made at the job level via the Job Maintenance screen. The original JCL is not deleted.

## **Editing JCL or Natural Programs**

- To edit JCL of a standard operating system job or a Natural program for a NAT-type job
  - 1. Type **E** in the line command field of the selected job in the Job Maintenance screen.
  - 2. Press Enter.

The **Entire Operations** Editor screen appears with the first page of the JCL or Natural program in it, for example:

```
EDIT: NATOP.V110.DEMO(DEMO1)------Columns 001 072
                                                          SCROLL===> CSR
====>
 ***** *************************** top of data *******************
00001 //SNDEMO1 JOB SN,CLASS=G,MSGCLASS=X,MSGLEVEL=(1,1)
00002 //*
00003 //* Entire Operations DEMO JOB - FIRST JOB IN NETWORK NET-1
00004 //*
00005 //* THE PROGRAM 'SNABND' SETS THE CONDITION OR SYSTEM CODE,
00006 //* WHICH IS PASSED TO IT AS PARAMETER.
00007 //* EACH STEP PRODUCES ANOTHER RETURNCODE.
00008 //*
00009 //STEP01 EXEC PGM=SNABND, PARM='C0000'
00010 //STEPLIB DD DSN=NATOP.V110.LOAD.DISP=SHR
00011 //STEP02 EXEC PGM=SNABND, PARM='C0004'
00012 //STEPLIB DD DSN=NATOP.V110.LOAD,DISP=SHR
00013 //STEP03 EXEC PGM=SNABND, PARM='C0008'
00014 //STEPLIB DD DSN=NATOP.V110.LOAD,DISP=SHR
00015 //STEP04 EXEC PGM=SNABND, PARM='C0012'
00016 //STEPLIB DD
                     DSN=NATOP.V110.LOAD,DISP=SHR
00017 //STEP05
               EXEC PGM=SNABND, PARM='S000'
00018 //STEPLIB DD
                     DSN=NATOP.V110.LOAD,DISP=SHR
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11---PF12
     Help
          End Quit Rfind Rchan Up Down Left Right Curso
```

Alternatively, you can invoke the Editor by pressing PF4 (Edit) from the Master Job Definition window when defining or modifying a job definition.

You can edit and scroll the JCL or Natural program using Editor commands and PF keys, even if the original definition was written outside **Entire Operations** with another editor.

If the selected job has no JCL or Natural program defined, a blank Editor screen appears and you can use Editor commands and PF keys to define JCL or Natural program. You can also write or edit the object using editors available at your installation outside of **Entire Operations**.

You can also use the Editor function to display and browse through JCL or a Natural program. To leave the object unchanged and exit the Editor, press PF4 (Quit).

For a full description of the **Entire Operations** Editor and all available special commands, see the **Software AG Editor Documentation**.

#### **Notes:**

#### 1. Automatic Logon to the Operating System Server

Before a JCL is edited, Entire Operations checks whether the user may access the JCL file. If it is an operating system file, then an automatic logon with the defined JCL Userid (BS2000/OSD and Unix and Windows NT) will be carried out, if required.

If this automatic logon does not function (e.g., if a password is required), then this will be displayed to the user. In this case, he must first logon to the corresponding operating system server.

#### 2. VSE/ESA: Editing JCL from VSE/ESA/Power RDR

You can edit a unique member with DISP=L only. After issuing the SAVE command, the edited member is submitted to the RDR queue. The old member is deleted. If you create a new member, a default JOB statement is created.

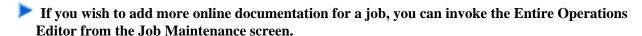
#### 3. Windows NT: File Names

File names in Windows NT can be written in an alternative notation, if the backslash character (\) is not available, like in mainframe environments.

See File Names under Windows NT.

## **Creating Online Documentation for Jobs**

You can add a brief description of a job when defining a job in the Master Job Definition window. This short description appears in the list of jobs on the Job Maintenance screen.



- 1. Type **P** in the line command field of the selected job.
- 2. Press Enter.

The **Entire Operations** Editor screen appears:

#### Note:

If no documentation exists for the job, the Editor screen appears without text. The example above shows the screen with 6 lines of text.

You can enter and edit text using Editor commands. For a detailed description of all Editor functions, see the **Software AG Editor Documentation**.

Once online documentation is written, it can be read by any user who is authorized to access the network to which the job belongs. Use the line command  $\mathbf{P}$  to display the current text.

You can also display or print online documentation with the **Entire Operations** Reporting option on the Main Menu (see the subsection Network Description in Section Reporting).

## **Pregenerate Active JCL**

For performance reasons, it might be necessary to pregenerate active JCL to be used for the job submission. This function is conceived mainly for MAC-type jobs, whose dynamic JCL generation can become time-consuming, because macro language must be always be executed. JCL can also be pregenerated for all other job types. For further information, see the subsection Dynamic JCL Generation in Section System Overview.

### To pregenerate active JCL

- 1. Type **G** in the line command field of the selected job in the Job Maintenance screen.
- 2. Press Enter.

The following window opens:

1	1.0	07.00	*** Entire Operations 3.2.1 ***	-+	10:30:08 R-169066
	!			!	
	!		Active JCL Pregeneration	!	Member
	!		J	!	
	!	Owner Si	Network R-169066 Job J-1	!	JC117573
	!			!	
	!	Due to p	performance reasons, it is possible to pregenerate	!	
	!	active 3	TCL, which will be used for the job submission.	!	
	!			!	
	!	Warning		!	
	!	Please v	use this function always after	!	
	!	- you mo	odified the definition of the JCL location,	!	
	!	-	lited the master JCL,	!	
	!	- you mo	odified the linked Symbol Table.	!	
	!			!	
	!	-	proceed with one of the following PF Keys:	!	
	!	PF3	End	!	*****
	!		Edit pre-generated JCL		ources
	!		Pre-generate active JCL	!	U Add.Log
	!	PF6	Remove pre-generated active JCL	!	<del></del>
E	!			!	1PF12
	+			-+	Menu

### **Special PF Keys: Active JCL Pregeneration**

Key	Name	Function	
PF4	-	Press this key to edit pregenerated JCL with the <b>Software AG Editor</b> .	
PF5	-	Press this key to pregenerate the active JCL. The message Function performed appears in the upper left of the window.	
PF6	-	Press this key to delete the pregenerated JCL. The message Object deleted appears in the upper left of the window.	

Press PF3 (End) to return to the Job Maintenance screen.

## No Re-loading after Editing

In case of a resubmission of the active job, the pre-generated JCL is not reloaded, if the active JCL of the job has been edited in the meantime.

## Scheduling a Job

### To define scheduling parameters at the job level

- 1. Type **S** in the line command input field of the selected job in the Job Maintenance screen.
- 2. Press Enter.

The Scheduling Parameters window opens:

```
! r
          Scheduling Parameters
                             !
 Job J-2
                             !
                             !
                             !
 !
                             !
                             !
                             !
!
!
                             !
! Deadline Time
                             !
                             !
!
! Schedule Dependency ==> N
                             !
                             ! *
!
Help End
              LMsg Acct ScDep Menu
        Save
+----+
Enter-PF1---PF3---PF3---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
  Help Add End Save Up Down
```

If scheduling parameters for an existing job are already defined, they appear in this window and you can modify them for the job. When defining a new schedule, some default values are already displayed. You can override them by overtyping them here.

#### **Time Frames**

Time frames defined on the job level override time frame definitions made on the network level for this job. If no time frames are defined here, the job network defaults apply.

#### Note:

If this function is invoked for an active job, the time frames contain the complete calculated date and time. Both can be modified.

### Field Descriptions: Scheduling Parameters

You can define the following parameters:

Field	Description		
Estimated Elapsed Time	The expected total running time for the job.  If <b>not specified explicitly</b> , this value is derived from the average running time of previous runs of the same job, displayed in the field directly below.  If, for a <b>dummy job</b> , this value is not equal to zero (# 0), then the dummy job is <b>executed</b> for exactly this amount of time. This enables you to perform time simulations, etc.  Special value: For NET-type jobs, 999999 can be specified. In this case, all start times after that are set to the ending times in the sub-network.		
Average	Average running time computed from 5 previous runs (see next field History Elapsed Time).		
History Elapsed Time	Shows real running times of previous runs of the job. The average running time of all previous runs is used to compute the probable time the job will finish.		
Earliest Start Time	The job will not be started before this time. See the subsection Time Frames on the preceding page.		
Latest Start Time	The job will not be started after this time. See the subsection Time Frames on the preceding page.  If this time precedes the earliest start time, and "days later" is null, "days later" is set to 1 so this time follows the earliest start time.		
Deadline Time	The job should be finished before this time. If the job cannot be finished before this time, it is not submitted. See the subsection Time Frames on the preceding page. <b>Dummy jobs</b> with Estimated Elapsed Time not equal to zero (# 0) are finished at this time at the latest.  If this time precedes the earliest start time, and "days later" is null, "days later" is set to 1 so this time follows the earliest start time.		
days later	You can use this field for Latest Start and Deadline to define a time span lasting longer than 24 hours.		
	<b>Note:</b> If Latest Start <b>or</b> Deadline is before the Earliest Start, the same time on the following day is assumed by default.		
Schedule Dependency	A Yhere indicates that this job has a schedule dependency. To define schedule dependency, press PF11(ScDep). For more information, see the subsection Defining Schedule Dependency for a Job.		

- Press PF5 (Save) to save the job scheduling parameters.
- Press PF3 (End) to return to the Job Maintenance screen.

## **Special PF Keys: Scheduling Parameters**

You can perform the following functions from the Scheduling Parameters window using these PF keys:

Key	Name	Function		
PF9	LMsg	Send late message. Define users to be informed, if the job was not executed in the defined time range.		
PF10	Acct	ob Accounting. Display job accounting data for the job.		
PF11	ScDep	Schedule-dependent activation. Define days on which the job is to be replaced by a DUMMY job.		

### Sending a Late Message to One or More Users

- To send a message informing one or more users that the job could not be submitted
  - Press PF9 (LMsg).

A window opens in which you can define message destinations:

11.07.00 Owner SN	*** Entire Operations 3.2.1 ***  Job Maintenance Netwo:	16:25	
	+	+	!
!	!	!	!
! Job JOB	! Owner SN Network DEMO-NET Job JOB1	!	!
!	! Latest Start HH:II exceeded	!	!
!	! Message and Message Receivers	!	!
! Estimat	!	!02	!
! History	! Text ==> Latest Start HH:II exceeded	_ !03	!
!	!	103	!
!	! to ==> Destination Processor Node	!	!
! Earlies	!	!	!
! Latest	!	!	!
! Deadlin	!	!	!
!	!	!	!
! Schedul	!	!	!
!	!	!	! * *
!PF1	!	!12	!
! Help		!nu	_
+	! Enter-PF1PF3PF5PF9PF12	!	-+
	! Help End Save Delete Menu		2
Help	+	+ Men	ıu

A destination can be a Con-nect user ID (if Con-nect is installed), a TP system user ID (for TSO and Com-plete), a terminal name (for BS2000/OSD) or an e-mail address. To send the message to the operator console, enter CONSOLE.

The procedure is identical to that described in the subsection Message Switching. See this subsection for further information.

### **Job Accounting Data**

- To display job accounting history from the Scheduling Parameters window
  - Press PF10 (Acct).

A window opens displaying the time and run number interval:

```
11.07.00
                *** Entire Operations 3.2.1 *** 15:59:20
                   Job Maintenance Network BIG-1
Owner SN
                    Scheduling Parameters
                                                     !
   Job JOB-014
                                                     !2
                                     Tape Drives ==> ____
                                                     !1
 !
                                                     !1
 !
 ! Estimated Elapsed Time ==> _____
                         _____ Min. Average ==> 7.00
                                                     !1
 ! History Elapsed Time ==> 2.00 12.00
                                                     1
 !
                                                     11
 !
                                                     ! 2
 ! Earliest +-----+
                                                     ! 1
 ! Latest St !
                                                     ! 1
   Deadline ! Owner SN Network BIG-1 Job JOB-014
                                                     !
         ! Date / Run Number Selection
                                                    ! 2
                                                    !**
    ! From Date 11.07.00 00:00 to 11.07.00 16:00 !
 ! ---PF1---P ! From Run 1____ to 99999
 ! Help E!
 +----! PF3 End
Enter-PF1---PF +-----+1--PF12---
    Help Add End Save Up Down
```

The default interval is the current date from midnight until the present time.

### Field Descriptions: Date / Run Number Selection

The input fields of the Date / Run Number Selection window are described in the following table:

Field	Description
From Date	Enter the date and time from which to display accounting data.
to	Enter the date and time until which to display accounting data.
From Run to	Enter the range of run numbers for which to display accounting data.

• Enter dates, times and run numbers and press Enter. The following screen appears:

11.07.00 Owner SN					s 3.2.1 *** g Data		10:56:18 ork DEMO-NET
Job	Run	JobId	Date	Start	Stop Ela	psed min C	PU Time sec
JOB1	748	1450	10.06.00	10:00:09	10:00:09	0.01	0.01
	749	1783		12:00:30	12:00:31	0.01	0.01
	750	1005		14:00:22	14:00:23	0.01	0.01
	752	1867	17.06.00	12:00:16	12:00:16	0.01	0.01
	757	3975	04.07.00	10:00:06	10:00:06	0.01	0.01
	758	4314		12:00:17	12:00:18	0.01	0.01
	759	4679		14:00:09	14:00:10	0.01	0.01
	765	4085	10.07.00	14:08:57	14:08:57	0.01	0.01
*****	*****	*****	***** B	ottom of D		******	*****
Enter-PF1	-PF2		·PF'4PF'5-			F.9PF.T0-	-PF11PF12
		End		Up	Down		

The Job Accounting Data screen contains job execution time information collected by the **Entire Operations** Monitor. The job elapsed time is in minutes and the CPU time is in seconds. Average values are available at the bottom of the screen.

This function is also available for job networks.

### **Column Headings: Job Accounting Data**

For explanation of the column headings on the Job Accounting Data screen, see the subsection Column Headings: Job Accounting Data in Section Reporting.

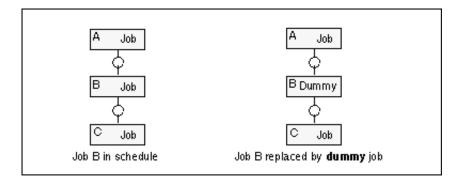
#### Note:

BS2000/OSD

Since the BS2000/OSD LOGOFF message does not contain seconds, the elapsed time cannot be calculated exactly.

## **Defining Schedule Dependency for a Job**

With this feature you can exclude a job from actual execution on certain schedule days without disturbing the job network structure. If a job is not to be activated, it can be converted into a **dummy** job just for this run. For example:



You can define job activation or input condition usage to be checked only on certain days.

#### Note:

You can also define schedule dependency for input conditions. For more information, see the subsection Defining Schedule Dependency for an Input Condition.

#### To define schedule dependency at the job level

• Press PF11 (ScDep) in the Scheduling Parameters window.

The Schedule Dependency Definition for Job window opens:

```
*** Entire Operations 3.2.1 ***
11.07.00
                                                   16:14:55
                     Job Maintenance Network DEMO-NET
Owner SN
  Job JO !
            Schedule Dependency Definition for Job
                            Job
                                   JOB4
  ! Owner SN
Estima! Network DEMO-NET
                           Condition
  Histor!
       ! The Job will be activated only (+) / not activated (-),
       ! if the execution date has the following position in the
  Earlie ! job network schedule or calendar:
  Latest !
  Deadli !
             Usage ==> _ + only
                                - except
                      A after Holiday too B before Holiday too !
  !
Schedu !
               Type ==> _ H is Holiday X is Workday
                       C Calendar Day W Workday S Schedule Day !**
  ---PF1- ! in Period ==> _ W Week
                                            Y Year!
                                    M Month
    Help ! at Position ==> __
          Help
                            Save
                                            Delete
   Help +----+
```

## Field Descriptions: Schedule Dependency Definition for Job

The input fields of the Schedule Dependency Definition for Job window are described in the following table:

Field	Description				
Usage	Enter one of the following values:				
	+ The job or condition is activated <b>only</b> if the execution date the criteria entered in the Type, in Period and at Position fie				
	A	Like +, but the <b>first</b> workday <b>after</b> a holiday is valid, too.			
	В	Like +, but the <b>last</b> workday <b>before</b> a holiday is valid, too.			
	-	The job or condition is activated <b>except</b> when the execution date satisfies the criteria entered in the Type, in Period and at Position fields.			
Type	Enter one of the following values:				
	Н	Any Holiday, no Period or Position required.			
	X	Any Workday, no Period or Position required.			
	C	Calendar day within the defined Period.			
	W	Workday within the defined Period.			
	S	Schedule day within the defined Period.			
in Period	Enter one of the following values:				
	W	Week			
	M	Month			
	Y	Year			
at Position	Enter + or - followed by a number to indicate a particular day within the Period defined above. For the period W (week) you can define up to 3 days simultaneously. See the examples below.				

## Special PF Keys: Schedule Dependency Definition for Job

You can perform the following function from the Schedule Dependency for Job window using this PF key:

Key	Name	Function
PF9	Delete	Delete entries for Usage, Type, in Period, at Position.

### **Examples:**

• To activate a job only on the last workday of the month:

Usage	Type	in Period	at Position
+	W	M	-1

• Not to activate a job on Wednesdays:

Usage	Туре	in Period	at Position
-	C	W	+3

• To activate a job every Monday (but on Tuesday, if Monday is a holiday):

Usage	Type	in Period	at Position
A	W	W	+1

• To activate a job every Monday, Wednesday and Friday:

Usage	Туре	in Period	at Position
+	С	W	+135

### Turn of the Year

Schedule dependencies can also be defined across the turn of the year. This applies in particular to the week, which begins in the old year and ends in the new year.

This functions only if the schedules and calendars used are defined for **both** years.

### **Deleting Entries**

- To delete your entries in the fields Usage, Type, in Period and in Position from the Schedule Dependency for Job window
  - 1. Press PF9 (Delete).

The following window opens:

```
11.07.00
              *** Entire Operations 3.2.1 ***
                                           09:24:50
                                     Network DEMO-NET
                   Job Maintenance
Owner SN
           Schedule Dependency Definition for Job
 ! ! Owner SN Job JOB1
! Estima ! Network DEMO-NET Condition
 ! Histor ! +-----+
      !
                                      !ed (-),
                                              !
                                     ! in the
       ! ! Please confirm
                                              !
 !
 ! Earlie ! ! the Deletion of DEPENDENCY
                                               !
 ! Latest ! ! by entering 'Y' ===> _
                                              !
 ! Deadli!!!
                                     !
                                              !
      !! PF3 End
                                     !Holiday too !
 ! Schedu ! +-----+
                C Calendar Day W Workday S Schedule Day !**
 ! Help! at Position ==> ____
 Enter-PF1--!
          Help End Save
                                    Delete !--
```

- 2. Enter Y and press Enter, to delete all entries from this window.
- 3. Press PF3 (End) to return to the Scheduling Parameters window.

## **Activating a Single Job Manually**

Just as you can perform an ad-hoc manual activation of a job network at any time to allow it to run outside of its scheduled times, you can also manually activate any job at any time, regardless of its position within a job network.

The activated job is assigned its own run number (in sequence with the network run number) and, if you do not change the date or time, is submitted immediately by the **Entire Operations** Monitor. If the job contains symbols as placeholders for variables, symbol prompting takes place as described in the subsection Symbol Prompting during Manual Activation in Section Network Maintenance.

The differences between the manual activation of a single job and the manual activation of a job network are that when a single job is activated:

- no check for defined input conditions for the job is performed;
- no output conditions are set by the job.

All other end-of-job actions defined for the job are executed.

### To activate a job manually

- 1. Type **R** in the line command input field for the selected job in the Job Maintenance screen.
- 2. Press Enter.

The following window opens:

	07.00 er SN			*** Entire Operation Job Mainter				16:23:51 rk DEMO-NET
Cmd	C R	Job *		ype Description		File or L	ibrary	Member
r	C1 C2	JOB1 JOB2		JOB firST-JOB		NOP.EXAMP		HUGO
_	C1	JOB3					!TL	HUGO
_	C1	JOB4	!	Job Activat:	ion		!	DYN01
_		MESSAGE	!				!	
_	C1	RECOVER	!	Owner	==>	SN	$!\mathrm{TL}$	HUGO
_			!	Network	==>	DEMO-NET	!	
_			!	Job	==>	JOB1	!	
_			!				!	
_			!	Use Time in Schedule	==>	N (Y/N)	!	
_			!	or activate at Date	==>	11.07.00	!	
_			!	Time	==>	16:23:56	!	
***	****	*****	!	JCL Check only	==>	N (Y/N)	! * * * * *	******
A De	pend	encies	!	EnterPF1PF3			- !s L R	esources
м мо	dify	O EOJ	!	Activate Help End			! Parms	U Add. Log
Comm	nand	=>	+				+	
nter	-PF1	PF2	-PF3	PF4PF5PF6I	PF7-	PF8PF	9PF10	PF11PF12
	Hel	p Add	End	Save (	Jр	Down		Menu

### **Field Descriptions: Job Activation**

The input and output fields of the Job Activation window are described in the following table:

Field	Description			
Owner	Owner of network in which job is to be activated. ( <b>not modifiable</b> )			
Network	Network in which	Network in which job is to be activated. ( <b>not modifiable</b> )		
Job	Job name. (not i	modifiable)		
Use Time in Schedule	Enter <b>Y</b> (yes) here to force the defined time frames (Earliest Start, Latest Start, Deadline) to be honored, even if the current date is not a scheduled date for the network. With this option, you can force the same time dependencies as if the network were scheduled and activated automatically. For more details on network time frames, see the subsection Activating a Job Network Manually in Section Network Maintenance.			
or activate at Date/Time	time on any date. There is no limitation for future date and time settings.			
	performed f		No symbol prompting is performed for later activations.	
JCL Check only	Check  Y Only a JCL check is performed for the job network or job. OS/390, JES2: TYPRUN=SCAN OS/390, JES3: EXEC PGM=JCLTEST BS2000/OSD: /MODIFY-SDF-OPTIONS MODE=TEST UNIX: Script execution with set -vn Windows NT: Jobs are started as 'Dummy because of JCL Check'. An actual JCL check does not take place. The necessary commands are automatically inserted. N Normal submission.			

## **User-defined Log**

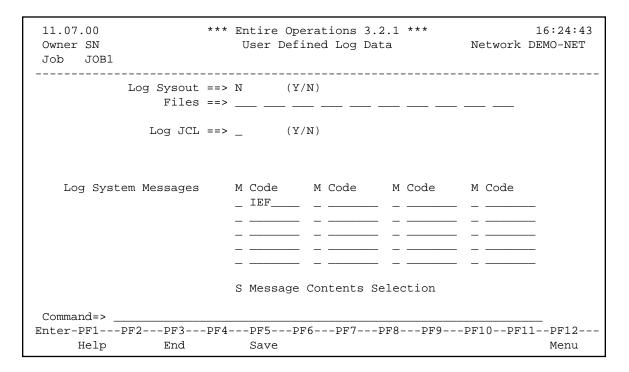
**Entire Operations** allows you to define which information is to be logged in addition to the **Entire Operations** default system log.

This information is defined at the job level and can be job sysout, JCL or selected operating system messages from the sysout.

### To specify user-defined log information

• Type U in the line command input field of the selected job in the Job Maintenance screen and press Enter.

A window opens in which you can specify the information to be logged:



### Field Descriptions: User-defined Log Data

The input fields of the User-defined Log Data window are described in the following table:

Field	Description		
Log Sysout	Specifies logging of job sysout files after job termination. Possible values:		
	Y	Logs sysout.	
	N	No sysout files are logged.	
<	Note:	Sysout logging can also be defined in End-of-Job Handling, Action: Sysout.	
Files (OS/390 only)	Input valid only if Log Sysout is specified. Enter number(s) of sysout file(s) to be logged. If left <b>blank</b> and Log Sysout is specified, all files are logged.		
Log JCL	Specifies logging of JCL after job termination. This is useful for dynamically generated JCL or if JCL is frequently modified for different job runs. Possible values:		
	Y	Logs JCL.	
	N	Does not log JCL.	
Log System Messages	Specify operating system messages to be logged. Enter a message code in a field under the Code heading. If you enter S (Message Content Selection) in the field headed M preceding a specified code and press Enter, a window opens in which you can define additional selection strings. The message is logged if no additional string is specified, or if at least one specified string is found in the message.		

- 1. Specify the information to be logged.
- 2. Press PF5 (Save) to save the information.
- 3. Press PF3 (End) to return to the Job Maintenance screen.

The logged information can be viewed after job termination using the **Entire Operations** Log Information facility (option 4 on the Main Menu). For further details, see Section Log Information.

## JCL Log

The JCL log is generated from the following sources:

BS2000/OSD	From the Enter file. (The Enter file is deleted after copying into the Entire Operations Log.)
OS/390	If Entire Operations runs on a mainframe: from the sysout.  If Entire Operations does not run on a mainframe: from the active JCL.
VSE/ESA	From the active JCL.
UNIX	From the active JCL.
Windows NT	From the active JCL.

## **Input Condition Maintenance**

Jobs within a job network are linked by user-defined **logical conditions**. During execution of networks and submission of jobs, **Entire Operations** automatically checks the status of logical conditions and triggers System actions accordingly. Alternatively, logical conditions can be set by an API routine.

In order to link two jobs, an input condition (prerequisite) defined for one job must also be defined as output (end-of-job) condition for the preceding job. This subsection tells you how to define and maintain input conditions.

### To invoke the Input Condition Maintenance facility

- 1. Select option 1 on the Main Menu to display the Network Maintenance screen.
- 2. Issue the line command L for the network containing the job to be linked.
- 3. Type **I** in the line command input field of the job with which you wish to associate the input condition.
- 4. Press Enter.

The Input Condition Maintenance screen appears:

### Column Headings: Input Condition Maintenance

The following table explains the column headings for the data listed on the Input Condition Maintenance screen:

Column	Description
С	One-character line command input field. The options are listed in the command section of the Input Condition Maintenance screen. See also Line Commands.

Condition	User-defined condition name. See also Glo	obal Conditions.			
Reference	Reference date used to refer to a certain occurrence of the input condition. For more information, see the subsection Input Condition References.				
Type	Denotes user-defined condition type expressed as any of the following:				
	destruct.	Condition will be destroyed after use.			
	dummy	If the condition is satisfied, the job is started as a temporary dummy job.			
	exclusive	Exclusive use of condition.			
	extern +	Condition from another network must exist.			
	extern -	Condition from another network must not exist.			
	false	Condition must not exist for job to be submitted.			
	File +	File must exist.			
	File -	File must not exist.			
	Job Var.	Condition depends on a job variable (BS2000/OSD only).			
	Mailbox +	Condition must exist; prompted in mailbox.			
	Mailbox -	Condition must not exist; prompted in mailbox.			
	Recov.tmp.	Condition is used for recovery (temporary - created by <b>Entire Operations</b> Monitor; for active jobs only).			
	Symbol	Condition depends on the value of a symbol in a symbol table.			
	true	Condition must exist for job to be submitted.			
	User Rtn	Condition depends on user routine result.			
	User Sw +	User Switch must exist.			
	User Sw -	User Switch must not exist.			
Sched Dep	If the condition is defined to be schedule-cappears in this column. For more informat Dependency for an Input Condition.	dependent, a short summary of the dependency ion, see the subsection Defining Schedule			
U	Usage. For active input conditions with sc values appears:	hedule dependency only. One of the following			

	Y	Condition is being used for the current activation.	
	N	Condition is not being used for current activation.	
	Schedule is always dynamically tested for this displa	.y.	
ex.	Y	The condition must exist.	
	N	The condition must not exist.	
Library	Natural library where the user routine resides.		
User Rtn	Natural user routine to set the condition (see the subsection Editing Input Condition User Routines).		

### **Line Commands: Input Condition Maintenance**

Use the following line commands to perform the described functions on any input condition listed on the Input Condition Maintenance screen:

Cmd	Description
D	Delete an input condition definition.
Е	Edit user routine to set input condition.
M	Modify input condition definition.
S	Add/Modify schedule dependency. For more information, see the subsection Defining Schedule Dependency for an Input Condition.
W	Display jobs for which the condition is used as input or output condition.

### **Special PF Keys: Input Condition Maintenance**

You can perform the following function from the Input Condition Maintenance screen using this PF key:

Key	Name	Function
PF4	ACond	Display list of currently active conditions.

You can perform several functions on input conditions using line commands and PF keys. These functions are described in the following subsections.

## **Adding Master Input Condition**

- To add a master input condition for a job
  - Press PF2 (Add) in the Input Condition Maintenance screen.

A window opens in which you can define a new condition:

11.07.00 Owner SN Network +	*** Entire Operations 3.2.1 ***  Input Conditions Maintenance Job	JOB-02
! C Condi! _ E60-J!	-	! ! er Rtn !
_ ! _ !	Owner       ==> SN	! ! !
_ !	<pre>Usage (mark with Y or N)   Must Exist: Y Exclusive: _ Destroy after usage: _ Depending on</pre>	! !
****** ! D Delet !	User Routine ==> _ Multiple Suffixes ==> _ File Existence ==> _ Mailbox ==> _ User Sw.(BS2000) ==> _ Symbol Value ==> _ Job Var.(BS2000) ==> _	!
	-PF1PF2PF3PF5PF9PF10PF12 Help Add End Save Xref ScDep Menu	
	neip naa ina bave kiel bebep nena	

### **Special PF Keys: Master Input Condition Addition / Modification**

You can perform the following functions from the Master Input Condition Addition / Modification window using these PF keys:

Key	Name	Function
PF9	Xref	Display the jobs for which the condition is defined as an input or output condition. The same window opens as if you had issued the W line command for the condition. For further information, see Displaying Jobs Linked to a Condition.
PF10	ScDep	Define schedule dependency for an input condition. The same window opens as if you had issued the <b>S</b> line command for the condition. For further information, see Defining Schedule Dependency for an Input Condition.

## Field Descriptions: Master Input Condition Addition / Modification

The input fields in the Master Input Condition Addition / Modification window are described in the following table:

Field	Description
Owner	The job owner is assumed as the default. You can select a different owner. The field may contain symbols.
Network	The job network is assumed as the default. You can select a different network. The field may contain symbols.
Condition	Name assigned to the condition or resource. The condition name and its reference date uniquely identify an active condition. The field may contain symbols. See Global Conditions.

<	Note:	A global condition can be used across networks. If you want to add or modify a global condition, a global condition:  • has the prefix +;
		<ul> <li>is assigned to the SYSDBA owner and network;</li> <li>has the reference ABS (absolute).</li> </ul>
Run	Current run number (for active j	obs only).
Reference	Reference date to specify which information, see the subsection l	occurrence of this definition the job uses. For more Input Condition References.
Usage/Must Exist	Y	Specifies that the condition must exist (be <b>true</b> ) as a prerequisite to job submission.
	N	Specifies that the condition must not exist (be <b>false</b> ) as a prerequisite for job submission.  Alternatively, this field also controls the setting of the condition according to the existence or non-existence of a file specified in the Depending on/File Existence field (file or member in a file; see field description, below).
Usage/Exclusive	Y	Specifies that when this condition is in use, no other job can access this condition until it is free (job finished).
	N	Default. Any job can use the condition at any time. This feature is useful to prevent simultaneous execution of jobs with the same input conditions.
Usage/Destroy after usage	Y	Specifies that the condition is automatically reset after the job is submitted.
	N	Default. Do not reset condition: later job runs can use this condition according to reference date.
Depending on/ User Routine	If the condition is to be set by a user routine, enter any character and press Enter.A window opens in which you can enter the name of the routine and the name of the Natural library in which the user routine resides. For further information, see the subsections Input Condition Depending on User Routine and Editing Input Condition User Routines.	
Depending on/ Multiple Suffixes	Enter any character and press Enter to define a symbol here. A window opens in which you can enter a symbol table name and symbol. See the subsection Input Condition Depending on Multiple Suffixes.	
Depending on/ File Existence	existence or non-existence of a f	nter to define an input condition dependent on the file. A window opens in which you can enter the ion Input Condition Depending on File Existence.

Depending on/ Mailbox	Enter any character and press Enter to define a user prompt to a mailbox. A window opens in which you can enter the name of the mailbox. See Input Condition Depending on Mailbox.
Depending on/ User Switch (BS2000/OSD only)	Enter any character and press Enter to define an input condition dependent on the existence or non-existence of a certain <b>user switch</b> . A window opens in which you can enter the name of the user switch. See the subsection Input Condition Depending on User Switch.
Depending on/ Symbol Value	Enter any character and press Enter to define an input condition dependent on a comparison with the value of a symbol in a symbol table. A window opens in which you can enter the symbol name and other parameters. See the subsection Input Condition Depending on Symbol Value.
Depending on/ Job Variable (BS2000/OSD)	Enter any character and press Enter to define an input condition dependent on a comparison with the contents of a BS2000/OSD <b>job variable</b> . See Input Condition Depending on Job Variable.

- 1. Enter the input condition parameters in the Master Input Condition Addition window.
- 2. Press PF5 (Save) to save the definition.

To add another input condition, press PF2. The Master Input Condition Addition window is cleared and you can enter a new input condition definition. You can add any number of input conditions for any one job.

3. Press PF3 (End) to return to the Input Condition Maintenance screen. All new input conditions appear in the main information section of this screen.

If you defined a user routine to set the condition, you can edit the routine by using the line command **E** for the condition on the Input Condition Maintenance screen. For more information, see Editing Input Condition User Routines.

## **Modifying Input Condition Definition**

- To modify an existing input condition definition
  - 1. Type **M** in the line command input field of the selected condition on the Input Condition Maintenance screen.
  - 2. Press Enter.
  - 3. The Master Input Condition Modification window (similar to the Addition window under Adding Master Input Condition) containing the current values opens. You can now modify the parameters.
  - 4. Press PF5 (Save) to save modified input condition.

## **Deleting Input Condition Definition**

- To delete an existing input condition definition
  - 1. Type **D** in the line command input field of the selected condition on the Input Condition Maintenance screen.
  - 2. Press Enter.

- 3. A window opens in which **Entire Operations** asks you to confirm the deletion by entering **Y**.
- 4. Enter **Y** and press Enter to delete the input condition definition.

#### **Note:**

After an input condition has been defined or modified, a loop check is performed for the network. The same conditions apply as described in the subsection Checking for a Loop in a Job Network in Section Network Mantenance, with one exception: if a loop is detected in the job flow, no corresponding message appears.

## **Input Condition Depending on User Routine**

An input condition value can be determined by a user routine. This user routine is executed by the Monitor until the condition is satisfied. The user routine can perform any data base or Entire System Server call to obtain the necessary information. This allows **Entire Operations** to react to complex or user-specific dependencies.

### To define a user routine which sets the condition

- 1. In the Master Input Condition Addition / Modification window, enter any character in the User Routine field under the Depending on heading.
- 2. Press Enter.

The following window opens:

11.07.00 Owner SN Network +-		*** Entire Operations 3. Input Conditions Maint		Job	16:49:59 JOB-02
!					!
C Condi !		Master Input Condition	Addition		!ser Rtn
_ E60-J !					!
_		==> SN			!
_ !	Network	==> BIG-1			!
		==> bry-1	Run ==>		!
_ !		==>			!
_ !	+-			+	!
_ !	Usage ( !			!	!
_ !	Must !	Input Condition User	Routine	!e: _	!
_ !	!			!	!
_ !	Dependi !	Condition ==> BRY-1		!	!
****** !	User !	Run ==>		!=> _	! * * * * * *
D Delet !	File !			!=> _	!
!	User !	Value will be determined	by	!	!
!	Job V !	NATURAL Library	==>	!	!
Command !	!	User Routine	==>	!	!
!	-PF1P !			!12	!
Enter-PF !	Help A!	PF1 Help PF3 End	PF9 Delete	!nu	!PF12
Не +-	+-			+	+Menu

In this window you can enter the name of the user routine and the name of the Natural library in which the user routine resides.

3. When finished, press PF3 (End) to save data and return to the Master Input Condition Addition / Modification window.

### **Field Descriptions: Input Condition User Routine**

The input fields are described in the following table:

Field	Description
Natural Library	Enter the name of the Natural library where the user routine resides. This library must be different from the <b>Entire Operations</b> system library.
User Routine	Enter the name of the user routine, which sets the condition. The user routine coding must start with DEFINE DATA PARAMETER USING NOPXPL-A.

See also the subsection Editing Input Condition User Routines.

### **Special PF Keys: Input Condition User Routine**

You can perform the following function from the Input Condition User Routine window using this PF key:

Key	Name	Function
PF9	Delete	Delete input condition dependent on user routine.

#### Notes

The **Entire Operations** Monitor deletes the parameter field P-RC (Return Code) before the user routine is called.

## **Input Condition Depending on Multiple Suffixes**

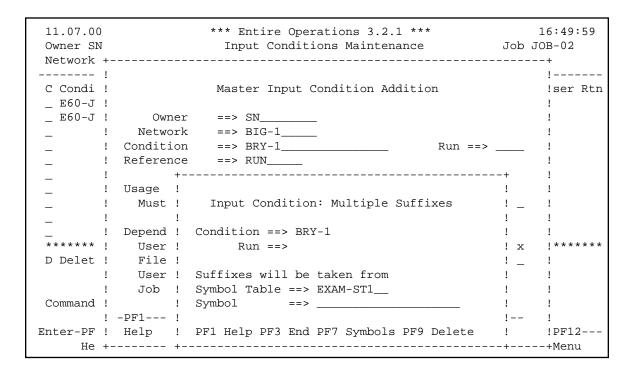
If you define a symbol here, its contents are separated and the single fields are concatenated to the active condition name. These multiple conditions are used to wait until all parallel executing predecessors are finished.

The active conditions are created during activation of the job network. For example, if the condition name is COND and if the specified symbol contains 001003012, the active conditions COND001, COND003 and COND012 are created.

### To define an input condition dependent on multiple suffixes

- 1. In the Master Input Condition Addition / Modification window, enter any character in the Multiple Suffixes field under the Depending on heading.
- 2. Press Enter.

The following window opens:



In this window you can enter a symbol table name and symbol.

3. When finished, press PF3 (End) to save data and return to the Master Input Condition Addition / Modification window.

### **Field Descriptions: Input Condition Multiple Suffixes**

The input fields are described in the following table:

Field Name	Description
Symbol Table	Enter the name of the symbol table. You must specify the same symbol table in the predecessor job definition.
Symbol	Enter the symbol. You must specify the same symbol in the predecessor job definition.

### **Special PF Keys: Input Condition Multiple Suffixes**

You can perform the following functions from the Input Condition Multiple Suffixes window using these PF keys:

Key	Name	Function
PF7	Symbols	List symbols in Symbol Table.
PF9	Delete	Delete input condition dependent on multiple suffixes.

## **Input Condition Depending on File Existence**

An input condition value can be dependent on the existence or non-existence of a file or of one of its members. The Monitor checks for the file or member on the job's execution node until the condition is satisfied.

#### **Under BS2000/OSD:**

The condition is satisfied only if the file is closed. For opened BS2000/OSD files, the condition is **not** satisfied.

### -

#### To define such an input condition

- 1. In the Master Input Condition Addition / Modification window, enter any character in the File Existence field under the Depending on heading.
- 2. Press Enter.

The following window opens:

In this window you can enter a file and member name.

3. When finished, press PF3 (End) to save data and return to the Master Input Condition Addition / Modification window.

## Field Descriptions: Input Condition depending on File

The input fields are described in the following table:

Field	Description	
Condition node	This is the operating system server on which the file's existence is to be checked. Default value is the node on which the job is executed.	
File Enter name of the file that must or must not exist. If the file is no volume serial number in the format <file>/<volume>.</volume></file>		Ç · 1 · 1
	Note:	When entering file name, remember to observe the rules for upper and lower case which are specific to some operating systems.
Member (optional)	If the input condition is dependent on the existence or non-existence of a <b>member</b> in the file specified in the File field, enter the member name.	
<	Note:	Only specify a member where necessary and possible. If this field is left <b>blank</b> , the existence of the whole file is checked.
exists	Enter <b>Y</b> , if the file (or member) must exist as a prerequisite to job submission. Enter <b>N</b> , if the file (or member) must not exist as a prerequisite.	

### Special PF Keys: Input Condition depending on File

You can perform the following function from the Input Condition depending on File window using this PF key:

	Key	Name	Function
I	PF9	Delete	Delete input condition depending on file.

#### Variable File Name

The fields File and/or Member can contain symbols preceded by an activation escape character. Symbol replacement is performed during the first existence check. The symbols are taken from the active symbol table assigned to the job. A missing symbol causes a permanent error.

Symbol replacement can be used for:

- file generation groups;
- changing input files;

etc.

After a successful symbol replacement, these fields will contain the replaced value in the **active** job. This reduces the effort with symbol replacements.

## **Input Condition Depending on Mailbox**

Mailboxes are defined to the system and assigned to user IDs by using the System Administrator Services option on the Main Menu. For more information on defining mailboxes, see the Entire Operations Administration Documentation. For more information on how mailboxes can be used, see Section Mailboxes.

### **Using Mailboxes with Input Conditions**

Each logical condition can be assigned to a mailbox.

- If the condition is the **only one** pending (unfulfilled) and is therefore delaying the start of the subsequent job, a message is automatically sent to the mailbox.
- If an input condition is dependent on manual action(s), a message is sent to a mailbox that prompts a user to confirm completion of the action(s).

Each user linked to this mailbox sees this prompt whenever the Main Menu or the Active Jobs screen is invoked.

A user confirms the prompt by resetting the requested condition. A user can be associated with up to ten mailboxes.

### **Defining the Input Condition**

- To send a user prompt to a mailbox for an input condition that is not satisfied during network execution
  - 1. In the Master Input Condition Addition / Modification window, enter any character in the Mailbox field under the Depending on heading.
  - 2. Press Enter.

The following window opens:

11.07.00 Owner SN Network +	*** Entire Operations 3.2.1 *** 17:03:19 Input Conditions Maintenance Job JOB-02
	· !
C Condi!	Master Input Condition Addition !ser Rt.
E60-J !	rabeel input condition hadreion .bei ke.
	Owner ==> SN!
	etwo ++ !
-	diti ! !> !
+! Ref	eren! Input Condition: User Interaction!!+
!!!	
_ ! ! Usa	ge ( ! Condition ==> BRY-1 !!!
_ ! ! M	ust ! Run ==> !age: _ ! !
_ ! C !	
_ ! ! Dep	endi ! If the condition is not satisfied !!!
**!! U	ser ! during the network execution, it ! ==> _ ! !**
D ! C ! F	ile ! is to be prompted at a mailbox. ! ==> x !!
! ! U	ser ! ! !_ !
! ! J	ob V ! !!!
Co ! !	! Mailbox ==>!!!!
! ! -PF1	P ! ! ! ! ! ! ! ! !
Ent ! P ! Hel	p A ! PF1 Help PF3 End PF9 Delete !Menu ! !
+ +	+++

In this window you can enter a mailbox name.

### **Field Descriptions: Input Condition User Interaction**

The input field has the following meaning:

Field Name	Description
Mailbox	Enter the name of the mailbox to which the prompt is to be sent.

## **Special PF Keys: Input Condition User Interaction**

You can perform the following function from the Input Condition User Interaction window using this PF key:

Key	Name	Function
PF9	Delete	Delete input condition depending on mailbox.

#### To list available mailboxes

- 1. Type an asterisk \* in the field labelled Mailbox in this window.
- 2. Press Enter.

A window opens listing all mailboxes defined to **Entire Operations**:

11.07.00 Owner SN	* *	* Entire Operations 3.2 Input Conditions M				7:04:26 +4
			i			1
C Condi!		Master Input Condit	!			!ser Rtn
E60-J !			!	Mailb	ox Selectio	
		==> SN	!	1101112	011 2010001	!
			!		** qoT **	!
-	Conditi!		!		BRY-BOX	!
- ;		Input Condition: Use	!	_	DWI-BOX	!
-			!	_	DWI-BOX-02	2 !
-	! Usage ( !	Condition ==> BRY-1	!	_	EXPORT-BOX	 X !
-	_	Run ==>	!	_	HUGO	·- !
- ;		11311	i	_	WKS-011	i
- ;	Dependi !	If the condition is n		_	X10	I
_	-	during the network ex		_		
		is to be prompted at			X12	I
l b beiec .	User!	is to se prompted at		_	X13	i i
;	Job V!			_	7113	
		Mailbox ==> *		DE3	DF7DF9	8 !
	: ! -PF1P !	PIGLIDOX>	!		Up Dov	
1		PF1 Help PF3 End	•			
не +	+-					+Menu

- 3. Select a mailbox by typing any character in the appropriate line command input field.
- 4. Press Enter.
- 5. The window closes and the selected mailbox name appears in the Mailbox field of the Master Input Condition Addition / Modification window.
- 6. When finished, press PF3 (End) to save data and return to the Master Input Condition Addition / Modification window.

## **Input Condition Depending on User Switch - BS2000/OSD**

An input condition value can be dependent on the existence or non-existence of a user switch. The Monitor checks for the user switch on the job's execution node until the condition is satisfied.

### To define such an input condition

- 1. In the Master Input Condition Addition / Modification window, enter any character in the User Switch field under the Depending on heading.
- 2. Press Enter.

The following window opens:

11.07.00 Owner SN	1			*** Entire Operations 3.2.1 *** Input Conditions Maintenance	Job	ESC-SYMB
						!
C Condi	!			Master Input Condition Addition		!ser Rtn
HUGO	!			<u></u>		!
_ 11000	!	0	พท	er ==> SN		·
_	,			rk ==> BS2-EX-5		
_				on ==> bry-1 Run ==>		,
_				Oli ==> Diy=i Ruii ==>		:
_		Kere				:
_	:	TT	:	Tours Condition descending on Hear Crites	:	:
_		_		Input Condition depending on User Switch	:	:
_	•	Mu	-		!e: _	!
_				Condition ==> BRY-1	!	!
_	!	Depe	!	Run ==>	!	!
*****	!	Us	!		!=> _	!*****
D Delet	!	Fi	!	Condition will be set to true, if	!=> _	!
	!	Us	!	User Switch ==> _0	!	!
	!	Jo	!	of BS2000 Userid ==> ASF	!	!
Command				exists ==> Y (Y/N)	!	1
		-PF1-			!12	1
	-		-	PF1 Help PF3 End PF9 Delete	!nu	·
		_				·
пе	Τ-				- т	TIMELLU

In this window you can enter a user switch and BS2000/OSD user ID.

3. When finished, press PF3 (End) to save data and return to the Master Input Condition Addition / Modification window.

### Field Descriptions: Input Condition depending on User Switch

The input fields are described in the following table:

Field	Description
User Switch	Number of a user switch.
of BS2000/OSD Userid	BS2000/OSD user ID to which the specified user switch belongs.
exists	Enter <b>Y</b> , if the user switch must exist as a prerequisite to job submission. Enter <b>N</b> , if the user switch must not exist as a prerequisite.

## Special PF Keys: Input Condition depending on User Switch

You can perform the following function from the Input Condition depending on User Switch window using this PF key:

Key	Name	Function
PF9	Delete	Delete input condition depending on user switch.

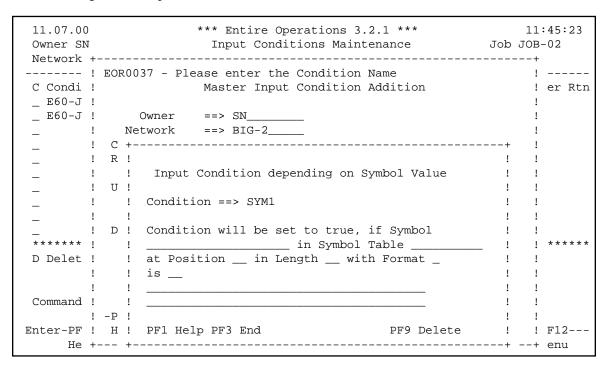
## **Input Condition Depending on Symbol Value**

An input condition can be dependent on a comparison with the contents of a symbol in a symbol table. The Monitor checks the value of the symbol on the job's execution node until the condition is satisfied.

### To define such an input condition

- 1. In the Master Input Condition Addition / Modification window, enter any character in the Symbol Value field under the Depending on heading.
- 2. Press Enter.

The following window opens:



In this window you can enter the symbol to be compared and further parameters to specify the symbol.

3. When finished, press PF3 (End) to save data and return to the Master Input Condition Addition / Modification window.

### Field Descriptions: Input Condition depending on Symbol Value

The input fields of the Input Condition depending on Symbol Value window are described in the following table:

Field	Description				
Condition will be set to true, if Symbol	Enter the name of a valid symbol.				
in Symbol Table	Enter the name of a valid symbol table. If you leave this field blank, the active symbol table of the job is used.				
at Position		osition of symbol substring to be checked. Possible values: 1 through 80. ed only if in Format <b>A</b> .)			
in Length		ength of symbol substring to be checked. Possible values: 1 through 80. ed only if in Format <b>A</b> .)			
with Format		ormat in which the symbol substring is to be checked against the rison string. Possible values:			
	A	Alphanumeric			
	D	Date in the format YYYYMMDD			
	L	Alphanumeric; between comparison string and symbol value, an implicit lower-case character comparison is made.			
	N	Numeric (zoned).			
	U	Alphanumeric; between comparison string and symbol value, an implicit upper-case character comparison is made.			
is xx		the comparison operator. Enter a logical operator for the comparison of ined symbol substring against the comparison string below. Possible			
	= or <b>EQ</b>	Code is equal to specified value.			
	>= or <b>GE</b>	Code is greater than or equal to specified value.			
	> or GT	Code is greater than specified value.			
	<= or <b>LE</b>	Code is lower than or equal to specified value.			
	< or LT	Code is lower than specified value.			
	!= or <b>NE</b>	Code is different from specified value.			
(Comparison string)		he string or field to be compared with the symbol substring. The strings in the defined Format.			

## Special PF Keys: Input Condition depending on Symbol Value

You can perform the following function from the Input Condition depending on Symbol Value window using this PF key:

Key	Name	Function
PF9	Delete	Delete input condition dependent on symbol value.

## **Input Condition Depending on Job Variable - BS2000/OSD**

An input condition can be dependent on a comparison with the contents of a BS2000/OSD job variable. The Monitor checks for the job variable on the job's execution node until the condition is satisfied.

### To define such an input condition

- 1. In the Master Input Condition Addition / Modification window, enter any character in the Job Variable field under the Depending on heading.
- 2. Press Enter.

The following window opens:

11.07.00	)		*** Entire Operations 3.2.1 ***	17:13:52
Owner SN	I		Input Conditions Maintenance Job	ESC-SYMB
Network	+			+
	!			!
C Condi	!		Master Input Condition Addition	!ser Rtn
_ HUGO	!		-	!
	!	+ -		+
	!	!		!
I _	!	C !	Input Condition depending on Job Variable Contents	!
		R!		!
	!	!	Condition ==> BRY-1	!
I _	!	U!	Run ==>	!
	!	!		!
	!	!	Condition will be set to true, if Job Variable	!
_	!	D!		!
*****	!	!	at Position in Length with Format _	!****
D Delet				!
	!	!	<del></del>	1
	!	!		1
Command	1	!	(Optional) Read Password ==>	!
	! -	P !		
Enter-PF	!	- · Н!	PF1 Help PF3 End PF9 Delete	!12
				+nu
1				1100

In this window you can enter a job variable and further parameters to specify the job variable.

3. When finished, press PF3 (End) to save data and return to the Master Input Condition Addition / Modification window.

# Field Descriptions: Input Condition depending on Job Variable Contents - BS2000/OSD

The input fields of the Input Condition depending on Job Variable Contents window are described in the following table:

Field	Descr	iption		
Condition will be set to true, if Job Variable	withou Symbo	Enter the name of a valid BS2000/OSD job variable. If the job variable is specified without an explicit user ID, the job default BS2000/OSD user ID is used as prefix. Symbol replacement is performed in the name, if it contains the activation escape character at least once.		
at Position	Enter 3 253.	Enter position of job variable substring to be checked. Possible values: 1 through 253.		
in Length	Enter 1 253.	length of job variable substring to be checked. Possible values: 1 through		
with Format		format in which the job variable substring is to be checked against the arison string. Possible values: A alphanumeric, N numeric (zoned).		
is xx		s the comparison operator. Enter a logical operator for the comparison of the d job variable substring against the comparison string below. Possible :		
	= or <b>EQ</b>	Code is equal to specified value.		
	>= or <b>GE</b>	Code is greater than or equal to specified value.		
	> or GT	Code is greater than specified value.		
	<= or <b>LE</b>	Code is lower than or equal to specified value.		
	< or LT	Code is lower than specified value.		
	!= or <b>NE</b>	Code is different from specified value.		
are Th ins Th		Enter the string or field to be compared with the job variable substring. The strings are compared in the defined <b>Format</b> .  The content of this field is compared with the substring of the job variable, or it is inserted into the substring of the job variable.  The content is treated as blank if "or" was defined.  The comparison is made in the defined format.		
(Optional) Read Password	If the job variable is read password-protected, specify the password here.			

## Special PF Keys: Input Condition depending on Job Variable Contents

You can perform the following function from the Input Condition depending on Job Variable Contents window using this PF key:

Key	Name	Function
PF9	Delete	Delete input condition dependent on job variable contents.

### **Global Conditions**

"Global" conditions exist once under the same name or they do not exist, as compared to "normal" conditions, which can have one occurrence per run number.

For the references of global input conditions, restrictions apply as compared to normal conditions. These are described in the following subsection Possible References for Conditions.

Global output conditions are always set with the reference ABS (absolute). The reference RUN is accepted, but is converted to ABS at runtime.

A global condition can be used across networks.

If you want to add or modify a global condition, the following applies: A global condition:

- has the prefix +;
- is assigned to the owner SYSDBA and to the network SYSDBA;
- gets the reference ABS (absolute).

## **Input Condition References**

To check an input condition, you must know which reference is meant. References can result in time or run number intervals.

The simplest reference is RUN, which refers to conditions set in the current network run. However, if you define an external input condition (which is not produced by the current network), you should always remember that different networks usually have different run numbers, which implies that RUN makes no sense in this case.

Run numbers are **not** assigned sequentially in chronological order. For references to previous network runs use LNR.

#### **Possible References for Conditions**

Ref.	Description
AAC	Job uses condition only if there is <b>at least one</b> entry in the active database for the owner, the network and the job.
ABS	Job uses condition only if it is <b>absolute</b> . Absolute conditions are independent of run numbers and can exist only once under the same name.
ANY	Job uses <b>any</b> occurrence of the condition, <b>except</b> ABS (absolute), which has a reserved run number.
ANT	Job uses condition only if there is <b>no</b> entry in the active database for this owner, network and job.
DAT	Job uses the condition as set by network run on the <b>current</b> date.
Date	(in the format: YYYYMMDD) Job uses condition only if set on an <b>explicit</b> date. The job then uses the condition as set by the network run on this date (does not apply when job can run more than once daily).

DST	Job uses the condition as set during network run on the <b>Date of job starting time</b> .
DUM	If this condition is satisfied, the job is started as a temporary dummy job. If this condition is <b>not</b> satisfied, the job is started normally.  If several conditions with the reference DUM are defined for a job, only one condition must be satisfied for the job to be executed as a dummy. The condition can have a special dependency (for example, on a file).  The active condition will also be accepted, if it has the reference ABS (absolute).  If a job is started as a temporary dummy job on account of a condition, then this will be written to the log.
HRC	Job uses the condition only if it was set a defined number of hours previous to the check time of the condition. This reference can only be entered with a relative hour value.
LNR	<ol> <li>If the condition was set by another network: The job uses the condition, if it was set by the most recent run in the previous <nnn> hours.</nnn></li> <li>If the condition was set by an earlier run of the same network: The job uses the condition, if it was set by an earlier run in the previous <nnn> hours.</nnn></li> <li>The condition is not set, if an error occurred during the most recent () or earlier run ().</li> <li>This reference is recommended for constructing chains of networks and must be followed by a relative value (see Relative Values).</li> </ol>
LNT	This reference is used like LNR. Additionally, the condition is set to true if the creating job network did not have an active occurrence in the time frame to be observed.
MON	Job uses the condition as set by network run of the current month.
PDA	Job uses the condition only if set on the same production date. The production date end time can be defined in the <b>Entire Operations</b> Defaults.
PDS	Job uses the condition only if set on the same production date, which applied for the job start time. The production date end time can be defined in the <b>Entire Operations</b> Defaults.
RUN	Job uses the condition as set by current network run (default).
WEK	Job uses the condition as set by network run of the current week.

With the exception of RUN, the described specifications also apply to global conditions.

### **Relative Values**

Some options can be followed by a minus sign (-) and a numeric offset. This is called a **relative value**. For example:

Option	Explanation
DAT-1	refers to yesterday
HRC-2	refers to the previous 2 hours
WEK-1	refers to the previous week.

The following references can have a relative value:

Reference	Unit of Relative Value	
DAT	Days	
HRC	Hour	
LNR	Hours	
MON	Months	
PDA	Days	
RUN	Run numbers	
WEK	Weeks	

#### **Defaults for Input Condition References**

If the Reference field in the Master Input Condition Addition window is left **blank** at definition, the following defaults are inserted:

Default	Description
RUN	If the condition is from the same network.
HRC-24	If the condition is from a different network.

## **Restrictions for Global Conditions**

For global conditions only the following references are allowed:

With the definition of an active condition	ABS, ANY, RUN
If used as input condition	HRC, DAT, PDA, WEK, MON, ABS, ANT, DUM, RUN, ANY
If used as output condition	ABS, RUN

For a description of references see Possibles References for Conditions.

## **Defining Schedule Dependency for an Input Condition**

You can define an input condition that is not used on all activation dates of a job network. This can be done for the following reasons:

- A predecessor job or network does not run on all schedule dates of the successor job or network.
- Some predecessor jobs are also schedule-dependent.

### To define schedule dependency for an input condition

- 1. Type **S** in the line command input field of the selected condition on the Input Condition Maintenance screen.
- 2. Press Enter.

The Schedule Dependency Definition for Input Condition window opens:

```
*** Entire Operations 3.2.1 *** 17:20:10
11.07.00
Owner SN
                    Input Conditions Maintenance
                                                  Job JOB4
Network DEMO-NET
C Conditio !
              Schedule Dependency Definition for Input Condition
s JOB3-OK !
        ! Owner SN
                              Job JOB4
        ! Network DEMO-NET Condition JOB3-OK
       ! The Condition is to be checked only (+) / except (-),
! if the execution date has the following position in the
! job network schedule or calendar:
        !
_ !
********!
D Delete !
!
                                         - except
               Usage ==> _ + only
               A after Holiday too B before Holiday too !**
                Type ==> _ H is Holiday X is Workday !
                        C Calendar Day W Workday S Schedule Day!
        ! in Period ==> _ W Week M Month Y Year !
Command => ! at Position ==> _____
  Enter-PF1--! Help End Save Delete!--
```

3. The procedure is identical to defining schedule dependency for a job. For further information, see the subsection Defining Schedule Dependency for a Job. For field descriptions, see here.

## **Editing Input Condition User Routines**

Input conditions can be set by user routines. If a user routine is defined for an input condition, **Entire**Operations automatically executes the routine when checking the status of input conditions before job submission.

In the normal case, user routines are Natural subprograms and are edited using the **Entire Operations** Editor.

### To use the user routine Editor

- 1. On the Input Condition Maintenance screen, type **E** in the line command input field for a UsrRtn-type condition.
- 2. Press Enter.

If the user routine already exists, the first page appears in the Editor screen.

3. If you are defining a new user routine, the parameter section appears in the Editor screen. You can only modify parameters by field redefinition.

You can now create or modify the user routine using Editor commands and PF keys. For a full description of the Editor, see the **Software AG Editor Documentation**.

Below is an example of a user routine to set an input condition:

```
Entire Operations
 USER ROUTINE TO SET AN INPUT CONDITION
* THIS ROUTINE CHECKS THE EXISTENCE OF A FILE, DEPENDING ON
 GIVEN PARAMETERS
DEFINE DATA PARAMETER USING NOPXPL-A
                 /* LOCAL VARIABLES START HERE
1 CATALOG VIEW OF CATALOG /* An Entire System Server VIEW
  2 NODE
  2 DSNAME
  2 ERROR-CODE
  2 ERROR-TEXT
1 #DSNAME
                 (A54)
END-DEFINE
* -----
RESET P-RC
                        /* ASSUME GOOD RETURN -> SET CONDITION
COMPRESS P-OWNER '.SYSF.SRCE' INTO #DSNAME LEAVING NO SPACE
CAT. FIND CATALOG WITH NODE = P-EXECUTION-NODE
   AND DSNAME = #DSNAME
 IF CAT.ERROR-CODE NE 0
   MOVE CAT.ERROR-CODE TO P-RC /* BAD RETURN
   MOVE CAT.ERROR-TEXT TO P-RT
   ESCAPE ROUTINE
 END-IF
END-FIND
               /* (CAT.)
END
```

All user routines finish with a return code that is returned in P-RC.

If P-RC is not equal to 0, the condition is reset (FALSE) and the user is notified with a message. In our example, if the routine finds a file with the string <OWNER>.SYSF.SRCE, the returned condition code (ERROR-CODE) sets (fulfills) the U-type input condition for which the routine was defined.

# **Displaying Jobs Linked to an Input Condition or Output Condition**

You can list jobs for which an existing condition is defined as an input or output condition.

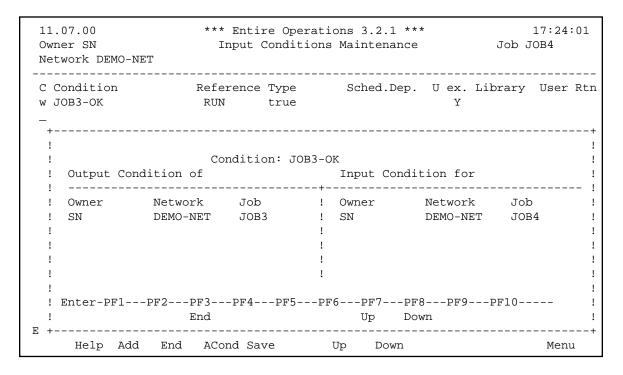
### To do this

- 1. Type **W** in the line command input field of the selected condition on the Input Condition Maintenance screen:
- 2. Press Enter.

A window opens with the name of the selected condition and two lists of jobs:

- one lists the jobs which use the condition as input condition;
- the other lists the jobs which use the condition as output condition.

The following figure shows an example display of job names for which a condition is defined. The jobs are listed according to owner, network and job name:



3. Press PF3 (End) to close the window.

#### Note:

For active input conditions, the structure of this screen is a little bit diverging (see Active Conditions screen).

## **Displaying Currently Active Conditions**

- To display currently active conditions
  - Press PF4 (ACond) on the Input Condition Maintenance screen.

The Active Conditions screen appears:

11.07.00 Owner SN	*	** Entire Operat: Active Cond			10:56:38
Cmd Owner		Condition Name	Date	Run	Status
SYSDBA SYSDBA SYSDBA SYSDBA SYSDBA		+J1-OK +J1-OK	11.07.00 11.07.00 11.07.00	1 2	free free
D Delete M :	 Modify				
Enter-PF1PF	2PF3P d End	F4PF5PF6 Save	-PF7PF8PF Up Down	9PF1	0PF11PF12 Menu

For further information, see the subsection Maintaining Active Conditions. in Section Active Job Networks.

# **Defining Prerequisite Resources**

Before you can define a resource as a prerequisite for a job, it must be defined to the system. Define resources to Entire Operations using the System Administrator Services option on the Main Menu. (See the Entire Operations Administration Documentation).

### To specify resources for a job

- 1. On the Job Maintenance screen, enter L in the line command input field of the selected job.
- 2. Press Enter.

A window opens with a list of resources already specified for the job:

11.07.00 Owner SN	*** Entire Operations 3.2.1 ***  Job Maintenance Networl	
Cmd C R Job  *  _ C1 JOB1	! ! Prerequisite Resources: Job RECOVER !	!Member ! !HUGO
_ C2 JOB2 _ C1 JOB3 _ C1 JOB4 MESSAGE	! Cmd Resource Name Quantity ! _ RES-1 1.0 ! _	! ! HUGO ! DYN01
1 C1 RECOVER	:	: ! HUGO ! !
_ _ _	! _ ! _ ! _	! ! !
_ ************************* A Dependencies C	!	! !****** !ces
Enter-PF1PF2P	! ! Enter-PF1PF2PF3PF5PF7PF8PF12 ! Help Add End Save Up Down Menu	_ !-PF12

## **Column Headings: Prerequisite Resources**

The following table explains the column headings for the data listed in the Prerequisite Resources window:

Column	Descrip	Description					
Cmd	One-cha	One-character line command input field. Possible options:					
	D	Delete resource as prerequisite for this job.					
	M	Modify resource for this job.					
Resource Name	Name of	Name of resource as defined in the System Administration facility.					
Quantity		Resource quantity required for job execution. <b>Entire Operations</b> does not submit the job until this amount of resource is available.					

### To specify a resource as a prerequisite for job submission

1. Press PF2 (Add) in the Prerequisite Resources window.

Another window opens in which you can specify the resource name and the quantity required for job submission:

Owne	07.00 er SN		*** Entire Operations 3.2.1 ***  Job Maintenance Network	DEMO-NET
Cmd	C R	Job	! ! Prerequisite Resources: Job RECOVER	!Member ! !HUGO
_	C2 C1	JOB2 JOB3	! Cmd Resource Name Quantity	!
- - 1	C1	JOB4 MESSAGE RECOVER	! ! Prerequisite Resource Definition !	! 1 ! !
_			! Resource Name ===>!	!!
_			! Required Quantity ===>! ! Enter-PF1PF2PF3	!!
_ _ ***	****	*****	! Help Add End Save Men	nu!
	_	encies C O EOJ Ch	! D Delete M Modify !	!ces !Add. Log
	-PF1	PF2P	! Enter-PF1PF2PF3PF5PF7PF8PF12 ! Help Add End Save Up Down Menu	- !-PF12

- 2. Type an asterisk (\*) in the Resource Name field.
- 3. Press Enter.
- 4. A window opens with a list of available resources:

	07.00 er SN			*** Er			perations 3.2.1 *** Maintenance			
Cmd	C R		!							!Member
		*	!	Pre	+-				-+	!
_	C1	JOB1	!		!				!	! HUGO
_	C2	JOB2	!	Cm	!	Sele	ect Resource by Markin	.g	!	!
_	C1	JOB3	+-		!				!	+
_	C1	JOB4	!		!	Cmd	Resource Name		!	!1
_		MESSAGE	!		!	_	E52-PARALLEL		!	!
1	C1	RECOVER	!		!	_	HUGO		!	!
_			!	Resour	!	_	F-MACHINE AVAILABLE		!	!
_			!		!	_	SAGSIS-102181		!	!
_			!	Requir	!	_	HUGO-1		!	!
_			!		!	_	A2345678901234567890		!	!
			!	Enter-P	!		XXX		!PF1	2 !
			!	Н	!		PARA-1		! Men	u!
***	****	*****	+-		!				!	+**
A De	epend	encies C	!	D	!	PF3	End PF7 Up PF8 Down	L	!	!ces
м мо	dify	O EOJ Ch	!		+-				-+	!Add. Lo
	_						PF3PF5PF7			
							End Save Up			
					-					

Use PF7 (Up) and PF8 (Down) to scroll the list.

- 5. Select a resource by typing any character in the appropriate line command field.
- 6. Press Enter.
- 7. The window closes and the selected resource name appears in the Resource Name field of the Prerequisite Resources window. You can now enter the quantity of the resource required for job submission in the Required Quantity field.
- 8. When you are finished, press PF5 (Save) to save the data.
- 9. Press PF2 (Add) to add a further resource for the job. You can specify any number of resources for a job, provided the resource is also defined to the system.
- 10. Press PF3 (End) to return to the Prerequisite Resources window.

The resources specified are now displayed in the list.

## **Modifying Resources**

### To modify resources already specified for the job

- 1. Type **M** in the line command input field of the selected resource in the Prerequisite Resources window.
- 2. Press Enter.
- 3. The same window opens as for the ADD function with the name and quantity of the resource to be modified. You can enter another resource name and/or quantity.
- 4. Press PF5 (Save) to save the new resource specification.
- 5. Press PF3 (End) to return to the Prerequisite Resources window.
- Press PF3 (End) again to close the Prerequisite Resources window and return to the Job Maintenance screen.

# **End-of-Job Checking and Actions - Overview**

Lis of End-of-Job Checking and Actions:

- End-Of-Job Actions with Execution as a Temporary Dummy Job
- End-of-Job Checking and Actions Facility
- Adding Event Definition for OS/390 or VSE/ESA Job
- Modifying Event Definition for OS/390 or VSE/ESA Job
- Adding Event Definition for BS2000/OSD Job
- Modifying Event Definition for BS2000/OSD Job
- Adding Event Definition for UNIX or Windows NT Job
- Modifying Event Definition for UNIX or Windows NT Job
- Deleting an Event Definition
- End-Of-Job Checking under several Operating Systems
- Creating Online Documentation for Events
- Adding Output Condition Definitions
- Modifying Output Condition Definitions
- Displaying Output Condition Use
- Editing End-of-Job User Routines
- Defining Activation of Jobs or Job Networks
- Defining Recovery Action
- Sysout Actions
- Passing Files to Entire Output Management
- Message Switching
- Defining End-of-Job Action User Routine
- Defining Other Actions

Defining end-of-job checking and actions means instructing Entire Operations what actions to trigger after a job has terminated. The triggered action is referred to as an **end-of-job action**.

The end-of-job action depends on the status of the whole job or any other event which can be checked by Entire Operations on termination. The status of the job on termination is determined by the occurrence of certain events during job execution which Entire Operations can check.

Before Entire Operations can check for an event, it must be defined to the system, together with instructions as to the action to be triggered. If no events are specified, Entire Operations performs end-of-job checking automatically using system defaults.

Events are checked on a **check ok/check not ok** basis. End-of-job actions can be triggered by:

- the result of a single event check (for example: job step level in OS/390);
- the overall result of the end-of-job check, which always causes either the event job ok or job not ok to occur.

Both of these event definitions are **always** predefined for every job.

In the latter case, you can define two sets of actions:

- one set is performed if all checks finished **ok** (i.e. **job ok**);
- the other is performed if at least one check finished **not ok** (i.e. **job not ok**).

All actions are performed after the job has terminated.

## **Kinds of End-of-Job Actions**

Possible end-of-job actions are:

- Set/reset output conditions;
- Set/reset/modify a job variable (BS2000/OSD only)
- Execute an end-of-job action user routine.
- Define activation of jobs or job networks;
- Start a recovery;
- Handle job sysout;
- Pass output files to Entire Output Management;
- Send user-defined messages;

Only one action of the same type can be defined for an event (except in the case of output conditions). If you need several actions of the same type for the event **job ok** or **job not ok**, you can define these by adding A type events.

## **End-of-Job Checks for Various Operating Systems**

The following table provides an overview of the availability of various end-of-job checks for the supported operating systems and environments:

<b>End-of-Job Check</b>	OS/390, MSP	VSE/ESA	BS2000/OSD	UNIX	Windows NT	SAP R/3
Termination Codes	*	*				
Job Variables			*			
User Routine	*	*	*	*	*	
String Search	*	*	*	*	*	*
User Switch			*			
Exit Code				*	*	

An asterisk \* indicates that the end-of-job check is available for the operating system. These checks are described later in this section.

# **End-Of-Job Actions with Execution as a Temporary Dummy Job**

Jobs can be executed as a temporary dummy job for different reasons. For further information, see Job Execution as a Dummy Job in Section System Overview.

The End-Of-Job Actions are executed as follows (with a top-bottom priority):

Conditions	Conditions are always set or deleted (even if the job is a temporary dummy job).
Dummy on account of Schedule	No further End-Of-Job Actions are executed
<b>Dummy for other Reasons</b>	End-Of-Job Actions are executed.

# **Sysout Actions**

Actions, which refer to the sysout file, are not executed, if **no** sysout file exists. This case will apply, if the job is executed as a temporary dummy job.

# **End-of-Job Checking and Actions Facility**

- To invoke the End-of-Job Checking and Actions facility, the Job Maintenance screen must be displayed.
  - 1. Type **O** in the line command field of the selected job.
  - 2. Press Enter.

The End-of-Job Checking and Actions screen appears:

```
*** Entire Operations 3.2.1 ***
11.07.00
                                                       13:02:56
Owner REQUEST End-Of-Job Checking + Actions MVS/ESA Job J-1
Network P-106270
C Action Step will be checked for
                  Additional Actions for Job-ok
  T X All Checks ok
       T Any Check not ok
A Activation C Cond. D Delete E Edit User Rtn J Job Var M Modify O Other
P Descr. R Recovery S Sysout T Output Mgmt U User Messages X Action User Rtn
Command => _
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add End Save Up
                                    Down
                                                          Menu
```

## Column Headings: End-of-Job Checking and Actions

Meaning of the column headings:

Column	Description					
С		er line command input field. For an explanation of possible line commands, nmands: End-of-Job Checking and Actions.				
Action	1	defined actions for the event. The character(s) here correspond to the line the bottom of the screen.				
Step	Step name in	JCL (ANYSTEP means all steps) (OS/390 only).				
will be checked for	Event to be checked for (condition code, system code, user abend code, System message, etc.)					
means	Event status	after check (All checks ok / Any check not ok).				
O / A		s: The O column is for <b>events</b> . The A column is for <b>actions</b> . The following opear in these columns:				
	(blank)	Does not apply.				
	-	Event did not occur. / Action not executed.				
	+	Event occurred. / Action was executed.				
	M	Original definition has been modified. (situation undetermined)				

# **Line Commands: End-of-Job Checking and Actions**

You can use the line commands to maintain the events and the actions to be triggered. All actions can be defined for an event (job step) or at the job level.

## To define an action at the job level

• Enter the required line command in the appropriate input field preceding the All checks ok or Any check not ok field.

The following line commands are available:

Cmd	Description
A	Activate a job or network if selected event occurs.
С	Define or modify the condition to be set or reset when the selected event occurs.
D	Delete an event definition.
Е	Edit the user routine to be executed if the selected event occurs.
J	Add or modify job variable (BS2000/OSD only).
M	Modify an event definition. OS/390/VSE/ESA BS2000/OSD UNIX, Windows NT
О	Accept a job as not ok.
P	Prose. Write a text description of an event.
R	Define a recovery action to be executed if the selected event occurs (normally job failure).
S	Define job sysout handling on job completion, if the selected event occurs.
Т	Pass files to Entire Output Management.
U	Define message to be sent if the selected event occurs.
X	Define a Natural user routine to be executed if the selected event occurs. This is called an <b>End-of-Job Action Routine</b> .

Note that the  $\mathbf{D}$  (DELETE),  $\mathbf{E}$  (EDIT) and  $\mathbf{M}$  (MODIFY) line commands are event maintenance commands, and therefore available at the event level only. All other line commands are also available at the job level according to All checks ok and Any check not ok.

The following subsections describe how you can use line commands and PF keys to maintain event definitions and define actions to be triggered at job termination.

# Adding Event Definition for OS/390 or VSE/ESA Job

- To add an event to be checked at job termination
  - Press PF2 (Add) on the End-of-Job Checking and Actions screen.

A window opens in which you can enter the event definition:

11.07.00 Owner REQ				perations					5:29
Network +-								+	
								i	
C Action !			Add Ev	ent Defin	ition				OA
	Frent			rmination			MV/C/FCZ		011
- :	E v CIIC	TAbe>		er Routin			MVS/ESA		
_ :						l Tala al-		:	
- :			S St	ring	A Add	i. Job-ok	,-not-ok	!	
_ !								!	
_ !								!	
_ !	Operat	or ==>	Event	==>	_			!	
_ !								!	
_ !	User R	outine ==	>	in NAT	JRAL Lik	rary ==>		_ !	
******								!	****
_ !	String	==>						!	
!	Select	==>						!	
_ !								!	
A Activa !	Occurr	ence of e	vent mea	ns OK or	VOT OK =	=>			ther
P Descr. !	OCCULI	circe or e	verre inca	IID OR OI	.101 010 -				Rtn
	Enton D	בים בים	משת	PF5			חביו ס		ICCII
								- :	
Command !		-					Menu	!	
Enter-PF1 +-									_
Help	Add E	nd	Save	ЧU	Down			Mei	nu

# Field Descriptions: Add/Modify Event Definition

(OS/390, VSE/ESA)

Meaning of the input fields:

Field	Descrip	Description			
Event Type	Type of	Type of event to be checked. Possible values:			
	A	Additional definition for job ok or job not ok. See Example of an A-type Event.			
	C	Return code received during job execution (job step). See Example of a C-type Event.			
	R	Job sysout is to be checked by a user routine. See Example of an R-type Event.			

Field	Description						
	S	Occurrence of a specific string in job sysout.  See Example of an S-type Event.  Note:  All checks of the sysout file and actions, which refer to the sysout file, are not executed, if no sysout file exists. This case will apply, if the job is submitted as a temporary dummy job.					
Step Name	Operato Special	-type event) The JCL step to be checked for the return code specified in the r and Event Type fields. step names:  TEP Event occurs if the definition is true for any step of the jobs.  C Event occurs if it is true for the maximum termination code (condition code) of the job.					
	Note:	In VSE/ESA you can define STEPNAMEs for Entire Operations with the LABEL statement: /.label, where label stands for STEPNAME. The STEPNAME defined in this way is valid for the following EXEC statement.					
Operator		<b>-type</b> event) Specify a logical operator to compare the received return code value entered in the Event Type field. Possible values:					
	= or EQ	Code is equal to specified value.					
	>= or GE	Code is greater than or equal to specified value.					
	> or GT	Code is greater than specified value.					
	<= or LE	Code is lower than or equal to specified value.					
	< or LT	Code is lower than specified value.					
	!= or NE	Code is different from specified value.					
Event	(for a <b>C-type</b> event) Specify a condition code to be compared with the return code. Possible values:						
	Cxxxx	Condition code xxxx ( <b>OS/390</b> ) Return code xxxx ( <b>VSE/ESA</b> )					
	Sxxx	System abend code xxx (OS/390 only)					
	Uxxxx	User abend code xxxx (OS/390 only)					
	JNR	Job not run, JCL error.					
	JFL	Job failed, JCL error.					
	JDL	Job deleted by operator.					
	JIR	Job execution interrupted (for example: system crash)					

Field	Descript	ion	
User Routine	(for an <b>R-type</b> event) Name of the user routine which is to run on job termination. See the subsection Editing End-of-Job User Routines.		
in Natural Library	(for an <b>R-type</b> event) The Natural library in which the user routine resides. This library should be different from the Entire Operations system library.		
String	1 '	<b>-type</b> event) Specify the actual string in the job sysout for which Entire ns is to check.	
Select (OS/390)	You can limit the search for strings by specifying file numbers in this field according to file type (SM, SO, JL). Enter file type followed by number, range of numbers or an asterisk * as wildcard. For example:		
	SM 1	Search system messages 1.	
	SM 1 5	Search system messages 1 to 5.	
	SO*	Search all sysout files.	
Select (VSE/ESA)	You can use these file types: LST, PUN, RDR.		
Occurrence of	Specify the event check status, if defined event occurs. Possible values:		
event means OK or NOT OK Check ok.		Check ok.	
NOT OK	NO	Check not ok.	
		No effect on the job result.	
	Usually actions are defined at the job level with the events All checks ok or Any check not ok. If you want to define an action of the same type two or more times for one of these events, you need additional event entries for job ok or job not ok. See Example of an A-type Event.		
	Note:		

When you have finished defining the event, you can proceed in one of the following ways:

- If you defined an R-type event, you can enter **E** in the line command field of the event on the End-of-Job Checking and Actions screen and press Enter to define the user routine using the Entire Operations Editor. (See the subsection Editing End-of-Job User Routines.)
- Press PF2 (Add) to save the definition and clear the window to add another event. You can define any number of events for any one job.
- Press PF5 (Save) to save the event definition(s).
- Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen. The new events are listed on this screen.

# Modifying Event Definition for OS/390 or VSE/ESA Job

### To modify an existing event definition

- 1. Type **M** in the line command field of the selected event on the End-of-Job Checking and Actions screen.
- 2. Press Enter.
- 3. The Modify Event Definition window opens with the current values for the event. You can modify the values by overtyping them.

When you are finished defining the event, you can proceed as follows:

- 4. Press PF5 (Save) to save the modification.
- 5. Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen.

#### Note:

The modify option (M line command) is available at the event level (job step) only.

Below are examples of each type of event definition:

## **Example of an A-type Event**

(OS/390)

11.07.00	*** Entire Operations 3.2.1 ***	11:5	7:08
Owner SN	End-Of-Job Checking + Actions MVS/ESA Job	JOB1	
Network +		+	
!		!	
C Action !	Add Event Definition	!	OA
_ !	Event Type ==> a C Termination Code MVS/ESA	. !	
_ !	+	+!	
_ !	!	!!	
_ !	! Event Definition: Additional 'Job ok/not ok'	!!	
_ !	!	!!	
	! This screen can be used to define an additional	!!	
_ !	! Job-ok or Job-not-ok event, to define multiple	!!	
	! End-of-Job actions.	!!	
_ *******	1	1 1	***
C !	! The event is for OK or NOT OK ==>	1 1	
_ !	!	1 1	
!	! Enter-PF1PF3PF5	1 1	
	! Help End Save	1 1	ther
	+	+ !	Rtn
	Enter-PF1PF2PF3PF5		1011
	Help Add End Save Menu		
	meth war find pave weith	• +	2
	Add End Save Up Down	Me	_

This screen can be used to define an additional **Job ok** or **Job not ok** event, to execute multiple end-of-job actions of the same type.

Usually actions are defined at the job level with the events **All checks ok** or **Any check not ok**. If you want to define an action of the same type two or more times for one of these events, you need additional event entries for **Job ok** or **Job not ok**.

#### Note:

You can use these additional event definitions to set conditions, but it is not recommended, because they are not evaluated for the display of job dependencies (see Job Dependencies in Section Job Maintenance).

## **Example of a C-type Event**

(OS/390)

11.07.00 Owner SN		JOB4	):00
		+	
!		!	
C Action !	Add Event Definition	!	OA
_ !	<pre>Event Type ==&gt; C C Termination Code</pre>	!	
!	R User Routine	!	
	S String A Add. Job-ok,-not-ok	i	
_ :	b beiling in had. oob on, not on		
_ :		:	
- !	Stepname ==> ANYSTEP	!	
_ !	Operator ==> EQ Event ==> C0003	!	
_ !		!	
_ !	User Routine ==> in NATURAL Library ==>	_ !	
******		!	****
i	String ==>	i	
- :			
- :	Select ==>		
!		!	
A Activa !	Occurrence of event means OK or NOT OK ==> NO	!	ther
P Descr. !		!	Rtn
!	Enter-PF1PF2PF3PF5PF12-	-!	
	Help Add End Save Menu		
		•	2
	Add End Save Up Down	Mer	

### **Explanation:**

If return code C0003 is received at any step during job execution, the event result will be **not ok**.

## **Example of an R-type Event**

(OS/390)

11.07.00	*** Entire Operations 3.2.1 ***  End-Of-Job Checking + Actions MVS/ESA Job JO	
! C Action!	Add Event Definition	! ! OA
	Event Type ==> R C Termination Code MVS/ESA	! OA
_ !	R User Routine	!
_ !	S String A Add. Job-ok,-not-ok	!
- !	Stepname ==>	! !
_ :	Operator ==> Event ==>	!
_ !		!
_ !	User Routine ==> UR1 in NATURAL Library ==> USER	! ****
_ !	String ==>	!
_ !	Select ==>	!
7 7 Agtiva I	Occurrence of event means OK or NOT OK ==> NO	!  ! ther
P Descr. !	occurrence of event means on of nor on> No	! Rtn
! :	Enter-PF1PF2PF3PF5PF12	!
	Help Add End Save Menu	!
	Add End Save Up Down	Menu

User routine UR1 checks the job sysout at job completion. This routine resides in Natural library SYSEORU.

### To edit the user routine

• Enter **E** in the line command field of the event on the End-of-Job Checking and Actions screen (see the subsection Editing End-of-Job User Routines).

# **Example of an S-type Event**

(OS/390)

11.07.00 Owner SN	*** Entire Operations 3.2.1 *** End-Of-Job Checking + Actions MVS/ESA Job	JOB4
Network +-		
C Action !	Add Event Definition	: ! OA
	Event Type ==> S C Termination Code MVS/ES	
_ :	R User Routine	
_ ;	S String A Add. Job-ok,-not-o	ok !
_ ;	b belling in maa. oob on, noe e	1
_ ;	Stepname ==>	
_ ;	Operator ==> Event ==>	
_ ;	operator /	
- ;	User Routine ==> in NATURAL Library ==>	
_ · · · · · · · · · · · · · · · · · · ·	oser Rodeine> in Natoral History>	·   ****
	String ==> EXCEEDS	
- :	Select ==> SM*	
:	DCICCE ==> DM	- ·
λ λαtiπa l	Occurrence of event means OK or NOT OK ==> NO	- : ! ther
P Descr. !	occurrence or event means or or nor or> no	! Rtn
	Enter-PF1PF2PF3PF5	
	Help Add End Save Menu	ı : + 2
	Add Tod Octob The Dates	. 2
нетр	Add End Save Up Down	Menu

If the string EXCEEDS appears in any system message, the event result is **not ok**.

If you enter NE or != in the Operator field, the event occurs if the string is **not** found.

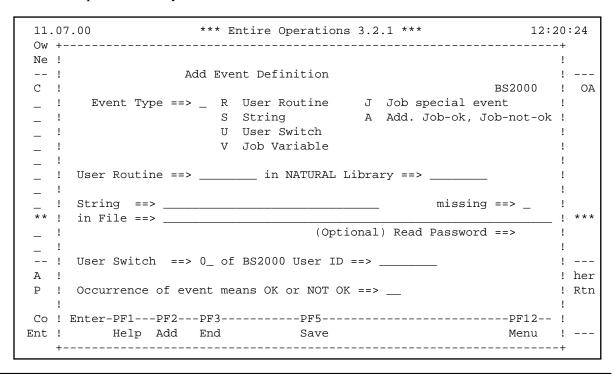
### Note:

All checks of the sysout file and actions which refer to the sysout file, are not executed, if **no** sysout file is available. This case only applies, if the job is submitted as a temporary dummy job.

# **Adding Event Definition for BS2000/OSD Job**

### To add an event to be checked at job termination

- 1. Press PF2 (Add) in the End-of-Job Checking and Actions screen.
- 2. A window opens in which you can enter the event definition:



# Field Descriptions: Add/Modify Event Definition

(BS2000/OSD)

Meaning of the input fields:

Field	Description			
Event Type	Type of event to be ch	ecked. Possible values:		
	A	Additional definition for <b>job ok</b> or <b>job not ok</b> . See Example of an A-type Event.		
	J	Special event during job execution. See Example of a J-type Event.		
	R	Job sysout is to be checked by a user routine. See Example of an R-type Event.		
	S	Occurrence of a specific string in job sysout. See Example of an S-type Event.		
	U	Event depends on a user switch. See Example of a U-type Event.		
	V	Event depends on contents of a <b>job variable</b> . If you enter <b>V</b> , press Enterimmediately to open a special window for job variable definition. See Example of a V-type Event.		
User Routine	(for an <b>R-type</b> event) Name of the user routine which is to run on job termination. See the subsection Editing End-of-Job User Routines.			
in Natural Library	(for an <b>R-type</b> event) Natural library in which the user routine resides. This library should be different from the Entire Operations system library.			
String	(for an <b>S-type</b> event) Specify the actual string in the job sysout for which Entire Operations is to check.			
(String) missing	(for an <b>S-type</b> event) If you enter <b>Y</b> here, the event occurs if the string is not found.			
in File	(for an <b>S-type</b> event) If you leave this field <b>blank</b> , Entire Operations searches for the String in the sysout collection file created by the Entire Operations Monitor. You can enter another file here to be searched instead. If the file name contains the activation escape character, a symbol replacement is performed (from the active symbol table). The updated file name is stored in the active database.			
User Switch	(for a <b>U-type</b> event) A valid BS2000/OSD user switch must be defined. (Range: 0 through 31).			
BS2000/OSD Userid	(for a <b>U-type</b> event) The BS2000/OSD user ID of the user switch.			
Occurrence of	Specify event check status if the defined event occurs. Possible values:			
event means OK or NOT OK	ОК	Check ok.		
	NO	Check not ok.		
		No effect on the job result.		

When you are finished defining the event, you can proceed in one of the following ways:

- If you defined an R-type event, you can enter **E** in the line command field of the event on the End-of-Job Checking and Actions screen and press Enter to define the user routine using the Entire Operations Editor. (See the subsection **Editing End-of-Job User Routines**.)
- Press PF2 (Add) to save the definition and clear the window to add another event. You can define

any number of events for any one job.

- Press PF5 (Save) to save the event definition(s).
- Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen. The new events are listed on this screen.

# **Modifying Event Definition for BS2000/OSD Job**

### To modify an existing event definition

- 1. Type **M** in the line command field of the selected event on the End-of-Job Checking and Actions screen.
- 2. Press Enter.
- 3. The Modify Event Definition window opens with the current values for the event. You can modify the values by overtyping them.
- 4. When you are finished defining the event, you can proceed as follows:
  - Press PF5 (Save) to save the modification.
  - Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen.

#### Note:

The modify option (M line command) is available at the event level (job step) only.

See the following examples of U-type (user switch), V-type (job variable) and J-type (special event) event definitions and for examples of R-type (user routine) and S-type (string search) event definitions.

# **Example of a U-type Event**

### (BS2000/OSD)

	+		+
Ne	•		!
	! Add Event	Definition	!
C	!	BS2000	! 0
_	! Event Type ==> U R Us	er Routine J Job special event	!
_	! S St	ring A Add. Job-ok, Job-not-ok	!
_	! U Us	er Switch	!
_	! V Jo	b Variable	!
_	!		!
_	! User Routine ==>	in NATURAL Library ==>	!
_	!		!
	! String ==>	missing ==> _	!
* *	! in File ==>		! **
	1	(Optional) Read Password ==>	!
_	1	(12	!
	! User Switch ==> 11 of BS	2000 User ID ==> DC1	!
	. 0201 2011 1 11 01 2		! he
	1		
A	! Occurrence of event means	OK or NOT OK ==> OK	I R+
A	! Occurrence of event means	OK or NOT OK ==> OK	! Rt
A P	!	OK or NOT OK ==> OK	!

The event is **ok** if user switch **11** of the BS2000/OSD user ID DC1 is **on** at job termination time.

# **Example of a V-type Event**

(BS2000/OSD)

11.07.00 Ow +		*** Entire Operations 3.2.1 ***	10:06:0
Ow + Ne ! ! C !		Add Event Definition BS200	! ! -
•	vent	Type ==> v R User Routine J Job special event	!
_ ·	!		1 1
_ !	!	Event Definition: Job Variable Checking	!!
_ !	!	BS2000	!!
_ ! Use	er!	If Contents of Job Variable	!!
_ !	!	\$DC1.JV.DEMO	_ !!
		at Position 10_ in Length 20_ with Format A	!!
**! in	Fi !	is EQ	!!*
_ !	!	Result is 100	!!
_ !	!		!!
! Use	er!	(Optional) Read Password ==>	!!-
A !	!		!! h
P ! Occ		The successful Check means OK or NOT OK ==> OK	!!R
!	!	Enter-PF1PF3PF5	-!!
Co ! Ente		Help End Save	!!
Ent!	+-		+!-

### **Explanation:**

The event is **ok** if the job variable \$DC1.JV.DEMO contains:

at position 10 in length 20 in alphanumeric format.

## Field Descriptions: Event Definition - Job Variable Checking - BS2000/OSD

Meaning of the input fields:

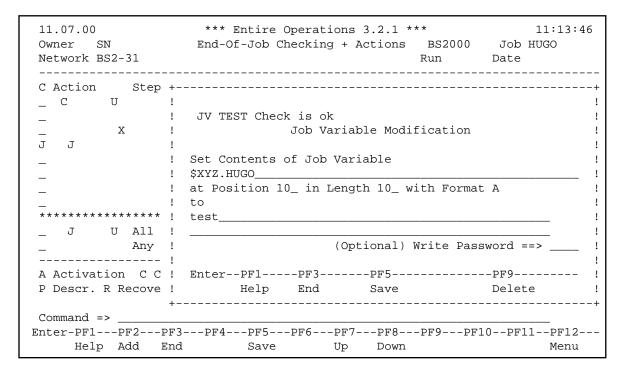
Field	Descript	tion	
If Contents of Job Variable	Enter the name of a valid BS2000/OSD job variable. If the job variable is specified without an explicit user ID, the job default BS2000/OSD user ID is used as prefix. Symbol replacement is performed in the name, if the name contains the activation escape character at least once.		
at Position	Enter po	sition of job variable substring to be checked. Possible values: 1 through 253.	
in Length	Enter ler	ngth of job variable substring to be checked. Possible values: 1 through 253.	
with Format		rmat in which the job variable substring is to be checked against the comparison ossible values:	
	A	alphanumeric	
	N	numeric (zoned)	
is xx	This is the <b>comparison operator</b> . Enter a logical operator for the comparison defined BS2000/OSD job variable substring against the comparison string below Possible values:		
	= or Code is equal to specified value.  EQ		
	>= or GE	Code is greater than or equal to specified value.	
	> or GT	Code is greater than specified value.	
	<= or LE	Code is lower than or equal to specified value.	
	< or LT	Code is lower than specified value.	
	!= or Code is different from specified value.  NE		
(Comparison string)	Enter the string or field to be compared with the job variable substring. The strings are compared in the defined Format.  The content of this field is compared with the substring of the job variable, or it is inserted into the substring of the job variable.  The comparison is made in the defined format.		
(Optional) Read Password	If the job variable is read password-protected, specify the password here.		

# Adding or Modifying a Job Variable

(BS2000/OSD)

To add or modify a job variable in BS2000/OSD

- 1. Type **J** in the line command field of the selected event on the End-of-Job Checking and Actions screen. Press Enter.
- 2. The Job Variable Modification window opens with the current values. You can modify the values by overtyping them:



If no job variable has been defined on job level, the fields in this window will be empty; you can set a job variable, by entering the values here. When you are finished setting or modifying the variable, you can proceed as follows:

- 3. Press PF5 (Save) to save the addition or modification.
- 4. Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen.

#### **Note:**

Symbol replacement is performed in the name, if the name contains the activation escape character at least once.

### **Special PF Keys: Job Variable Modification**

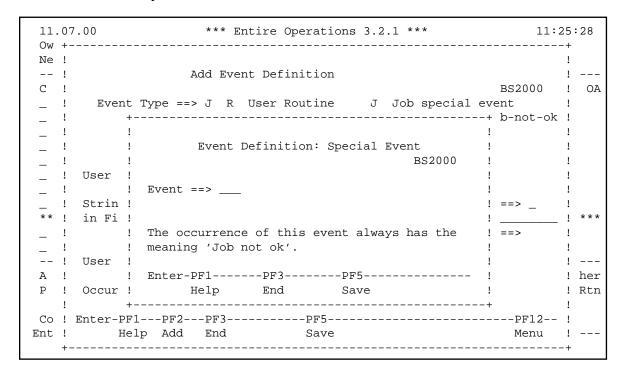
You can perform the following function from the Job Variable Modification window using this PF key:

Key	Name	Function
PF9	Delete	Delete current job variable.

## **Example of a J-type Event**

(BS2000/OSD)

This function enables you to define special events which could occur during job execution. When such an event occurs this **always** means **Job not ok**.



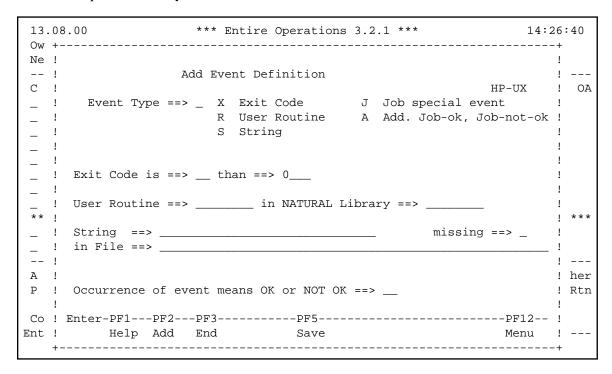
### **Explanation:**

JIR = Job execution interrupted.

This event occurs if an operating system abend or hardware failure occurs during job execution. This is always used when a job did not run on LOGOFF (job ended normally) or ABEND (job interrupted with error). The defined actions are performed after the start of the Monitor.

# **Adding Event Definition for UNIX or Windows NT Job**

- To add an event to be checked at job termination
  - 1. Press PF2 (Add) in the End-of-Job Checking and Actions screen.
  - 2. A window opens in which you can enter the event definition:



Field Descriptions: Add/Modify Event Definition - UNIX, Windows NT

Meaning of the input fields:

Field	Description		
Event Type	Type of event to be check	xed. Possible values:	
	A	Additional definition for job ok or job not ok. See Example of an A-type Event.	
	J	Special event during job execution. See Example of a J-type Event.	
	R	Job sysout is to be checked by a user routine. See Example of an R-type Event.	
	S	Occurrence of a specific string in job sysout. See Example of an S-type Event.	
	X	Exit Code Check. This function allows you to check the exit code of a UNIX or Windows NT job.  The result of the event comes from the exit code of a script under UNIX or Windows NT or from the exit code of a program executable under Windows NT.  Note: A standard check for the exit code can be defined in the Entire Operations defaults.  Windows NT:  Checking this event only works with Version 4.0 or higher as the System variable %errorlevel% is used.	
User Routine	(for an <b>R-type</b> event) Name of the user routine which is to run on job termination. See the subsection Editing End-of-Job User Routines.		
in Natural Library	(for an <b>R-type</b> event) Natural library in which the user routine resides. This library should be different from the Entire Operations system library.		
String	(for an <b>S-type</b> event) Specify the actual string in the job sysout for which Entire Operations is to check.		
(String) missing	(for an <b>S-type</b> event) If y	ou enter Y here, the event occurs if the string is not found.	
in File	(for an <b>S-type</b> event) If you leave this field <b>blank</b> , Entire Operations searches for the <b>String</b> in the sysout collection file created by the Entire Operations Monitor. You can enter another file here to be searched instead. If the file name contains the activation escape character, a symbol replacement is performed (from the active symbol table). The updated file name is stored in the active database.		
Occurrence of	Specify event check statu	s if the defined event occurs. Possible values:	
event means OK or NOT OK	ОК	Check ok.	
of five one	NO	Check not ok.	
		No effect on the job result.	

When you are finished defining the event, you can proceed in one of the following ways:

- If you defined an R-type event, you can enter **E** in the line command field of the event on the End-of-Job Checking and Actions screen and press Enter to define the user routine using the Entire Operations Editor. (See the subsection Editing End-of-Job User Routines.)
- Press PF2 (Add) to save the definition and clear the window to add another event. You can define

any number of events for any one job.

- Press PF5 (Save) to save the event definition(s).
- Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen. The new events are listed on this screen.

# **Modifying Event Definition for UNIX or Windows NT Job**

### To modify an existing event definition

- 1. Type **M** in the line command field of the selected event on the End-of-Job Checking and Actions screen. Press Enter.
- 2. The Modify Event Definition window opens with the current values for the event. You can modify the values by overtyping them.

When you are finished defining the event, you can proceed as follows:

- 3. Press PF5 (Save) to save the modification.
- 4. Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen.

#### Note:

The modify option (M line command) is available at the event level only.

# **Deleting an Event Definition**

### To delete an event definition

1. Type **D** in the line command field of the selected event in the End-of-Job Checking and Actions screen. Press Enter.

A window opens in which Entire Operations asks you to confirm the deletion by entering the event name.

2. Press Enter to perform the deletion and close the window.

#### Note:

The **D** line command is available only at the event level.

Deletion of an event also deletes all associated definitions made via the End-of-Job Checking and Actions screen (action for the event, etc.).

# **End-Of-Job Checking under several Operating Systems**

## OS/390 Defaults for Event Checking

If no events are defined for a job, Entire Operations provides a default check of the return code type (for a **C-type** event):

• If a system code unequal to 0 (zero) has occurred at any job step, the job is evaluated as **not ok** if this event is not explicitly defined.

This also applies, if an event has occurred which has been defined using ANYSTEP. The occurrence of such an event has the priority over definitions, which apply for any steps.

 It can be defined throughout the system, how the occurrence of the message IEF201I job terminated because of condition codes is treated (see Entire Operations Administration Documentation).

If it was defined there that this message shall not default to **not ok** as a consequence, then this is written to the log, the job set to the status **Job interrupted**, and the job is treated as **not ok**. If this was not defined, then the occurrence of IEF201I in sysout has no consequences.

- If the message **IEF287I data set not cataloged** is received, it is written to the log and the job is treated as **not ok**.
- If a condition code or user code, which is not explicitly defined, is received at any job step, it is compared with the **highest value accepted as ok**. The job is **not ok** if the code is higher than this default. The job is also **not ok**, if no explicit check has returned an **ok**. For more information, see the subsection Entire Operations Defaults in Section System Administrator Services of the Entire Operations Administration Documentation.
- If a string defined in the Global Message Code Table is found anywhere in the sysout, its severity equivalent is compared with the **highest condition code value accepted as ok**. The job is **not ok** if the severity equivalent is higher than this default.
- Events like JCL error, Job not run, Job interrupted always produce the status not ok.
- In all other cases, the job is accepted as **ok**.

### **Precedence of Event Checks**

- If a '/MAXCC' oder '/ANYSTEP' check has been defined, and this event occurs, no check is done on the **highest value accepted as still OK**.
- '/MAXCC' precedes '/ANYSTEP'.

## **VSE/ESA Defaults for Event Checking**

The same rules as for OS/390 defaults apply to VSE/ESA.

#### Note:

No system codes are available in the VSE/ESA operating system.

The following messages lead to a **not ok** status of the VSE/ESA job:

- PROGRAM ABEND
- ENDED ABNORMALLY
- OPERATOR CANCEL

### **Date Formats in VSE/ESA Sysout**

In VSE/ESA sysout the following date formats are recognized and handled:

<b>American Format</b>	MM/DD/YY, MM/DD/YYYY
European Format	DD/MM/YY, DD/MM/YYYY

If a date contains a 2-digit year specification in sysout, then Entire Operations adds the century for further processing. In this case, a sliding window of +/-50 years is applied.

## **BS2000/OSD Defaults for Event Checking**

Entire Operations either uses a defined Monitor job variable for a job or creates its own job variable, if job variables are available.

- If the Monitor job variable displays an **abnormal end**, the job is **not ok**.
- By default, if defined message keys appear, the job is regarded as faulty and is set to **not ok**:

These message codes (see the Entire Operations Administration Documentation) are default settings which are in effect after the installation of Entire Operations. However, they can be deliberately adapted. It is possible to completely delete this table.

Please note each time this table is modified that possibly faulty jobs may not be set to **not ok** any longer.

This list can be changed.

- If messages like **program dump**, etc. appear in the sysout, the job is **not ok**.
- The Global Message Code Table is checked as described for OS/390, above.
- In all other cases, the job is accepted as **ok**.

## **UNIX and Windows NT Defaults for Event Checking**

Entire Operations inserts start and end messages (EOR0301, EOR0302) in the sysout.

- If the end message is missing, the job is treated like an interrupted job.
- The Global Message Code Table is checked, as described for OS/390.
- If no special event checking was defined for a job (Unix and Windows NT), then the event is compared to a system-wide default value for Unix or Windows NT. Depending upon this check, the job result can be set to **not ok**.
- In all other cases, the job is accepted as **ok**.

# **Creating Online Documentation for Events**

- You can write or modify a text description of any event or of any job status according to All checks ok and Any check not ok status:
  - 1. Type  $\mathbf{P}$  in the line command input field of the appropriate event on the End-of-Job Checking and Actions screen. Press Enter.

The Entire Operations Editor screen appears.

2. You can write a text using Editor commands. A full description of the Entire Operations Editor is contained in the **Software AG Editor Documentation**.

# **Adding Output Condition Definitions**

You can define an output condition for an event or a job.

# Adding an Output Condition for an Event

- To add an output condition definition for a defined event
  - 1. Type C in the line command field of the selected event on the End-of-Job Checking and Actions screen. Press Enter.

The Output Conditions window opens with a list of existing output conditions).

2. Proceed as described after Column Headings: Output Conditions in the subsection Adding an Output Condition for a Job Event.

# Adding an Output Condition for a Job Event

- To define a condition at the job level according to end-of-job status (job ok = All checks ok, job not ok = Any check not ok)
  - 1. Type the C line command in the **All checks ok** or **Any check not ok** line command field on the End-of-Job Checking and Actions screen.
  - 2. Press Enter.

The Output Conditions opens with a list of existing output conditions:

11.07.00 Owner EXAMPI Network E60-FI	ĿΕ				-		3.2.1 <sup>3</sup> Actions		SA	Job		
C Action	+										+	OA
_ P	!										!	
_	!	Job	ended	ok							!	
_	!				Outp	ut Con	ditions				!	
_	!	Cmd	State	Con	dition	Name	I	Referenc	:e	Run	. !	
_	!	_	Set	E60	-JOB2-	01	F	RUN			!	
_	!	_	Set	E60	-JOB2-	02	F	RUN			!	
_	!	_	Reset	E60	-J015-	0	I	RUN			!	
_	!	_	Reset	E60	-J019-	0	I	RUN			!	
******	!	_	Reset	E60	-JOB1-	0	I	RUN			!	***
c C P	!	_									!	
_ PR	!	_									!	
	!	_									!	
A Activation	!	_									!	thei
P Descr. R Re	!	_									!	Rtr
	!	DI	Delete	M M	odify	W Whe	re used				!	
Command =>	! I	Enter-	-PF1	-PF2-	PF3-	PF5-	PI	77PF8	P	F12-	!	
Enter-PF1PF			_				_					2
Help Ad	+										+	u

# **Column Headings: Output Conditions**

Meaning of the column headings:

Column	Description		
Cmd	One-character line co	One-character line command input field. Possible values:	
	D	Deletes condition as output condition for the job.	
	M	Modifies the output condition definition.	
	W	Displays a table of jobs for which this condition is defined as input or output condition. For more information, see the subsection Displaying Output Condition Use.	
State	A condition can be set (to TRUE) or reset (to FALSE) on the occurrence of an event.		
Condition Name	User-defined name for condition. Use this name if you wish to define this output condition as an input condition for another job.		
Reference	Notation used to distinguish between the same condition in different job runs. Use this reference date if you wish to define this output condition as input condition for another job. If left <b>blank</b> , the current run is assumed.		
Run	Run number of job to which this condition applies when modifying condition for an active job.		

## To add an output condition definition

• Press PF2 (Add).

The Output Condition Addition window opens:

11.07.00 Owner EXAMPLE Network E60-FLOW	*** Entire Operations 3.2.1 *** End-Of-Job Checking + Actions MVS/ESA Run	Job JOB Date	:26:33 -02
c P!	Step STEP1 returns Condition Code = C0000		 -+ OA ! !
_	ep STEP1 returns Condition Code = C0000 Output Condition Addition	! n ! !	! ! !
_ ! _ ! ****** !	Condition ==> Reference ==> Run ==>	: ! !	! ! ****
_ PR !	Set/Reset ==>	: ! !	!
	D Delete M Modify W Where used	! +	! ther ! Rtn !
Enter-PF1PF !	nter-PF1PF2PF3PF5PF7PF8 Help Add End Save Up Down	Menu	! ! 2 -+ u

## Field Descriptions: Output Condition Addition/Modification

Meaning of the input fields:

Field	Description			
Condition	Condition nar	ne.		
<	Note:	A condition that can be used <b>across networks</b> is called a <b>global condition</b> . If you want to add or modify a global condition:		
		• The prefix is +.		
		A global condition is assigned to the SYSDBA owner and network.		
Reference	An output cornumber). Poss	ndition can be set with different references (usually the current network run sible values:		
	RUN	Current run number of the job network is assigned.		
	Absolute condition. Exists only <b>once</b> , because it is independent of runumbers.			
		is evaluated and set when the active condition is created by the Monitor he end-of-job definition.		
Run	Run number of job to which this condition is to apply when modifying condition for an active job.			
Set/Reset	If the associate event occurs, SET specifies setting the condition to TRUE; RESET specifies setting the condition to FALSE. Default is set.			

• Press PF3 (End) to save the definition and return to the list of conditions in the Output Conditions window.

You can define up to 50 output conditions for any one event at the job step level, or at the job level according to **All checks ok** and **Any checks not ok**.

# **Modifying Output Condition Definitions**

#### To modify an existing output condition

1. Type **M** in the line command input field of the selected condition in the Output Conditions window.

The Output Condition Modification window opens with the current values of the conditions.

The Output Condition Modification and Addition windows have the identical layout. The input fields are explained above under Field Descriptions: Output Condition Addition/Modification.

- 2. Modify the values.
- 3. Press PF3 (End) to save the new definition and return to the Output Conditions window.

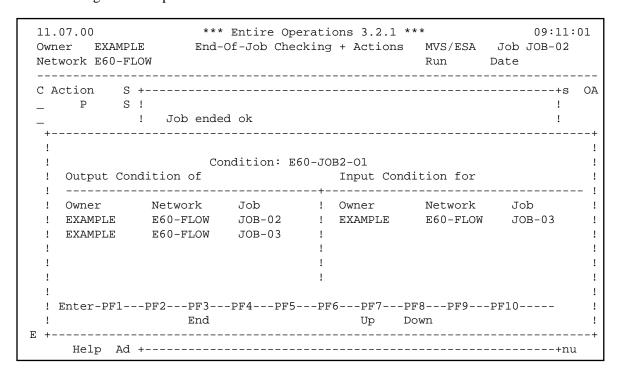
#### **Note:**

After you add or modify an output condition definition, a loop check is performed on the affected network. The same conditions apply as described in the subsection Checking for a Loop in a Job Network in Section Network Maintenance with one exception: if a loop is detected in the job flow, no corresponding message appears.

# **Displaying Output Condition Use**

- To display a list of jobs, for which the output condition is defined as an input or output condition
  - 1. Enter **W** in the line command input field of the selected condition in the Output Conditionswindow. Press Enter.

The following window opens:



2. Press PF3 (End) to return to the Output Conditions window.

# **Editing End-of-Job User Routines**

#### To create or edit the user routine defined to run when the associated event occurs

1. Type **E** in the line command field of the associated event in the End-of-Job Checking and Actions screen. Press Enter.

The Entire Operations Editor screen appears. If a user routine has already been defined, it appears on the screen.

#### Note:

The edit option - **E** line command - is available only at the event level, and only if the event is an **R**-type.

2. You can modify the existing user routine or create a new one using Editor commands and PF keys.

A user check routine must be a Natural subprogram. The subprogram returns a code zero to signal **job ok** status. Any other code signals **job not ok**.

#### **Example:**

On the following page is an example of an end-of-job user routine. This routine summarizes the contents of a numeric field in the sysout and compares it with a given value. If both are equal, the event is **ok**, otherwise it is **not ok**.

For a full description of the Editor, see the Software AG Editor Documentation.

```
DEFINE DATA PARAMETER USING NOPXPL-A
LOCAL
                                    /* AN ENTIRE SYSTEM SERVER VIEW
1 READ-SPOOL VIEW OF READ-SPOOL
  2 RECORD
  2 REDEFINE RECORD
   3 RECORD-HEADER (A05)
         (I02) CONST <10> /* MAX. NUMBER FOR SEPARATION (N08) INIT <0>
1 #NF
1 #SUM
1 #SUM-EXPECTED (NO8) CONST <2000>
1 #FIELD
                  (A10/1:#NF)
1 #LOG-STATUS
                  (N04)
1 #LOG-MESSAGE
                  (A60)
END-DEFINE
```

```
* This EOJ User Routine will read the Job sysout (dataset 2)
* and will summarize a defined field.
* If the sum is equal to a given value, this routine returns
* an 'OK' (P-RC = 0), otherwise 'NOT OK'.
* A log record will be written to document the result.
RESET #SUM
RS. FIND READ-SPOOL
   WITH NODE = P-EXECUTION-NODE AND JOB-NUMBER = P-JOB-NUMBER
   AND TYPE = 'SO' AND DATA-SET = 2 AND RECORD-NUMBER >= 1
 ACCEPT IF RS.RECORD-HEADER = 'REC01' /* interesting only
 SEPARATE RS.RECORD LEFT JUSTIFIED INTO #FIELD(*)
 ADD VAL(#FIELD(3)) TO #SUM
END-FIND
IF #SUM = #SUM-EXPECTED
 RESET P-RC
 MOVE 'Sum check is ok' TO #LOG-MESSAGE
ELSE
 MOVE 1 TO P-RC
 COMPRESS 'Sum:' #SUM 'Expected:' #SUM-EXPECTED INTO #LOG-MESSAGE
END-IF
MOVE 9999 TO #LOG-STATUS
CALLNAT 'NOPULW3N'
                            /* WRITE LOG RECORD
 #LOG-STATUS #LOG-MESSAGE P-OWNER P-NETWORK P-JOB P-RUN
 P-JOB-NUMBER
END
```

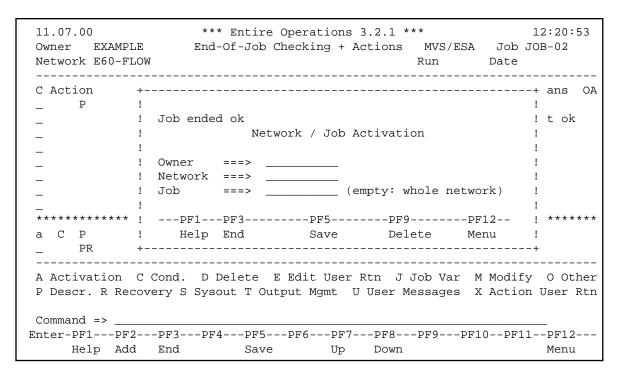
# **Defining Activation of Jobs or Job Networks**

The occurrence of a defined event during job execution can trigger the activation of a specified single job or a whole job network. You can define activation of a job or network for specific events or at the job level for **All checks ok/Any check not ok**.

## To specify job or job network activation as end-of-job checking and actions

1. Type **A** in the line command input field of the selected event on the End-of-Job Checking and Actions screen. Press Enter.

The following window opens when defining job or network activation at the job level for **All checks ok**:



- 2. Specify the owner, network name and, if a single job is to be activated, the job name in the appropriate fields in the window.
- 3. Press PF5 (Save) to save the definition.

You can select Owner, Network and Job names from selection windows invoked by entering search criteria with an asterisk \* as wildcard in the input fields and pressing Enter.

For example, enter ABC\* in the Network field and press Enter to list all network names beginning with ABC and belonging to the specified owner. Enter an asterisk \* in the Job field and press Enter, for example, to list all jobs in the specified network.

If you leave the Job field **blank**, the whole specified network is activated.

#### **Note:**

Activation is only possible if the network belongs to the defining user or if the defining user is authorized to activate the network of another user. The user defining the network to be activated must

at least have authorization to activate this network (see the subsection Authorizing Other Users to Access a Network. in Section Network Maintenance)

# **Defining Recovery Action**

You can define a recovery process to be started as the result of a defined event during job execution. You can also define recovery action at the job level according to **Any check not ok**. Usually, recovery is used in case of job failure.

The conventional way to trigger a recovery network would be to define an event which activates the recovery network. Recovery is then started only if the event occurs or if any check is **not ok**.

# However, Entire Operations also provides a line command on the End-of-Job Checking and Actions screen to define recovery action

- 1. Type **R** in the line command input field of the selected event on the End-of-Job Checking and Actions screen. Press Enter.
- 2. The Recovery Definition window opens, in which you can specify the recovery network to be started. (The recovery network must be defined in the Network Maintenance facility.):

```
*** Entire Operations 3.2.1 ***
11.07.00
                                                         15:50:33
Owner EXAMPLE End-Of-Job Checking + Actions MVS/ESA Job JOB-02
Network E60-FLOW
                                          Run Date
C Action Step will be checked for

P STEP1 Condition Code = C0000

C Occurrence of String Library full
                                                    means OA
                                                        ok
                                                        n.ok
 +----+
   Occurrence of String Library full
    Recovery Definition
wner ==> (SAME)____
 ! Owner
 ! Network ==> (SAME)____
   Job ==> _____ (blank: whole network) ! ***************
 ! Same Run ==> _ (Y/N)
 ! Reschedule ==> \_ (Y/N)
 ! Repeat ==> ___
                                            ! ar M Modify O Other
 ! Wait Time ==> ___ Minutes
                                            ! es X Action User Rtn
 ! ---PF1---PF3------PF5------PF9------PF12--- ! _
E! Help End Save Delete Menu! --PF10--PF12---
```

For example, a recovery job can be a compression job started after the message **Library full** is received. The string **Library full** should be defined as an S-type event. Entire Operations starts the recovery job automatically when the event occurs.

## **Field Descriptions: Recovery Definition**

Meaning of the input fields:

Field	Description			
Owner	Name of the owner of the recovery network. Default: (SAME). If you do not change the default, (SAME) means the owner of the network to be recovered. The default value is replaced at execution time.			
Network	Name of network containing the recovery job(s). Default: (SAME). If you do not chang the default, (SAME) means the same network as the one containing the job(s) to be recovered. The default value is replaced at execution time.			
	<b>Note:</b> When you copy a recovery job to another network, the default values (SA for owner and network remain unchanged, so that the recovery job can be used unchanged in the network to which it was copied.			
Job	Name of the last job in the recovery network. This job must terminate successfully to start rescheduling.			
Same Run	Single recovery jobs can be defined in the same network and can be executed under the same run number as the network to be recovered. All active objects of the network are the accessible for the recovery job with this run number. Possible values:			
	Y	Use same run number (default for single jobs).		
	N	Use a separate run number for the recovery (default for whole network).		
Reschedule	Specifies whether job is to be rescheduled for submission after reco	overy. Possible values:		
	Y	Resubmit the job.		
	N	Do not resubmit the job. (default)		
Repeat	Maximum number of times recovery job is to be retried. Default is	1.		
Wait Time	The time to wait in minutes until the recovery is started.			

You can display a selection list of available Networks, Jobs and Owners by entering an asterisk \* in the appropriate field and pressing Enter.

## **Special PF Keys: Recovery Definition**

You can perform the following function from the Recovery Definition window using this PF key:

Key	Name	Function
PF9	Delete	Delete current recovery definition.

# **System Symbols for Recovery Actions**

When defining a recovery action, the following Entire Operations system symbols can be prefixed with the escape symbol for symbol prompting and used, for example, in a comment line in the JCL of the recovery job:

Field Name	Description
P-C-OWNER	Owner of the job making the call.
P-C-NETWORK	Network of the job making the call.
P-C-JOB	Name of job making the call.
P-C-RUN	Run number of the job making the call.
P-C-Suffix	Value of the suffix symbol of the job making the call.

They are substituted at JCL load with their current values. In the sysout of the recovery job, you can then find the substitution of the parameters:

```
*** Symbol : P-C-OWNER
    Value : GFR
*** Symbol : P-C-NETWORK
    Value : NET-1
*** Symbol : P-C-JOB
    Value : JOB-6
*** Symbol : P-C-RUN
    Value : 208
EXEC PGM=NOPCONTI
//STEPLIB DD DISP=SHR, DSN=NOP.DEV.LOAD
*** CALLER OWNER GFR
*** CALLER NETWORK NET-1
*** CALLER JOB JOB-6
*** CALLER RUN
               208
```

In this way you can find out the job making the call, that is, the job to be recovered by the recovery job.

# **Sysout Actions**

You can define the job sysout to be cancelled or printed as the result of a defined event or the end-of-job status (**All checks ok** and **Any check not ok**).

## To define job sysout actions

- 1. Type the **S** line command in the appropriate line command field in the End-of-Job Checking and Actions screen.
- 2. Press Enter.

The Sysout Actions window opens:

31.01.00 Owner SN Network RZF-REC	*** Entire Operations 3.2.1 *** End-Of-Job Checking + Actions MVS/ESA Job C	16:30:36 JOB-1
C Action +-		eans OA
s !		.ok
_ !	Job deleted by Operator	!
_ !	Sysout Actions	!
_ !		!
_ !	Delete Sysout after Job Completion ===> D	!
_ !	Print Sysout ===> P	!
_ !	Log Sysout in ENTIRE OPERATIONS Log ===> L	!
_ !	Log Sysout, then Delete it $===> N$	!
********	Log Sysout, then Print it ===> M	******
_ C !	Pass Sysout to ENTIRE OUTPUT MGMT ===> O	!
_ !	Please Select ===> _	!
!		!
A Activation !	Spool Class to be set after Completion ===> _	0 Other
P Descr. R Re !		! User Rtn
	PF1 Help PF3 End	!
		+ <u> </u>
Enter-PF1PF2	-PF3PF4PF5PF6PF7PF8PF9PF10PF1	LPF12
Help Add	End Save Up Down	Menu

# **Field Descriptions: Sysout Actions**

Field	Description		
Please Select	Enter one of the following letters in this field to perform the function:		
	D	Delete sysout on job completion.	
	P Release sysout for printing.		
	L	Log sysout in Entire Operations log file.	
	N	Log sysout and then cancel it.	
	M	Log sysout and then print it.	
	Pass sysout to Entire Output Management (NOM). In NOM, the report name is EOR-SO (This function is available only under BS2000/OSD).		
Spool Class to be set after Job Completion	You can specify that the spool class of a job is to be modified after completion. If this is specified as default, it applies to <b>all</b> jobs. Job-specific definitions override the default.		
	<ol> <li>Notes:</li> <li>This field has no effect in BS2000/OSD.</li> <li>The class entered here has priority, if a class is set as system (see the subsection Defaults for OS/390 and OS/390/XA in System Administrator Services of the Entire Operations Additional Documentation).</li> <li>You should only define sysout class changes under All check not ok.</li> </ol>		

End-of-job user routines are available for more complex actions, for example for obtaining selected information from the job sysout.

- 3. Press PF5 (Save) to save the definition.
- 4. Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen.

Sysout actions are performed at job completion if the associated event occurs.

# **Passing Files to Entire Output Management**

- After job termination, one or several files can be passed to Entire Output Management for output processing.
  - Type the **T** line command in the **All checks ok** or **Any check not ok** line command field on the End-of-Job Checking and Actions screen. Press Enter.

The following window opens:

This window contains a list of all files to be handled by Entire Output Management.

#### **Notes:**

- 1. If you want to specify more than 10 files for a job, define an additional **job ok** / **job not ok** event first, and define the additional files there.
- 2. The following are requirements for using this function:
  - Entire Output Management version 1.3.3 or higher must be installed;
  - an NTFILE or LFILE definition for the Entire Output Management System File must be entered
    in the start parameters for System Automation Tools or Entire Operations. For further
    information, see Section Installation and Customization in the Entire Operations Installation
    Documentation.

## Adding a File Definition for Entire Output Management

To add a file definition for Entire Output Management

1. In the Files for Entire Output Management window press PF2 (Add).

The following window opens:

```
*** Entire Operations 3.2.1 ***
11.07.00
                                               13:21:32
 +----- ESA Job J-1
                                           Date
 ! Job ended ok
    File Definition for Output Management (NOM) ! -----+
 ! Please select:
         Spool File Definition ==> _ ! NT
Output File Definition ==> _ !
   -----PF3------!
****** ! _ §EUMEL..TEST
T ! _ Sysout SO 4
       _ Procname XXX Stepname YYY DDName ZZZ
_ TEST.TEST.TEST
A Acti!
P Desc !
        D Delete M Modify
  !
Comman ! Enter---PF1---PF2---PF3---PF5------
Enter-P! Help Add End Save
    H +----+
```

2. Select either Spool File or Output File by entering any character in the appropriate field. Press Enter.

One of the following windows opens:

- Spool File
- Output File

# **Spool File**

This window opens if you have marked the definition of a spool file in the selection window as described under Adding a File Definition for Entire Output Management:

```
11.07.00
         *** Entire Operations 3.2.1 ***
                                                13:32:31
             -----+ ESA Job J-1
 !
   Job ended ok !
   File Definitio ! Job ended ok
                                                    ! -+
            ! File Definition for Output Management (NOM): ! !
   Please select: !
                   Spool File
    Spool F!
Output F! Operating System ==> MVS/ESA

Control Type ==> JES2
 !
 !
                                                      !
 !
             ! Spool Type ==> JES2
                                                    !
                                                      !
   -----PF3-----!
                                                    !
 !
                                                      !
        End! Please specify either
                                                    1
                                                      - 1
 +-----! Spool File Type ==> __
                                                    1
                                                      . !
***** ! _ §EUMEL ! Spool File Number ==> ___
                                                    1
                                                      !
T !
        _ Sysout !
                                                    1
                                                      !
        _ Procna ! or
        __ TEST.T ! Procname ==> _____
_ ! Stepname ==> _____
_ ! DD Name ==> _____
P Desc !
  ! D Delete !
Comman ! Enter--PF ! ---PF3------ ! !
             He! Help End
Enter-P !
   H +-----+ +----+ -+
```

You can use this screen to define a file of the job sysout to be handled.

You must specify:

- either the Spool File Type and Number (for VSE/ESA: Spool File Type only)
- or Procname, Stepname and DD Name of the file.

For more information on spool file types, see the subsections Defining Report Identification for JES or Defining Report Identification for POWER in Section Defining a Report of the Entire Output Management Reference Documentation.

# **Output File - Sequential File**

This window opens if you have marked the definition of an output file in the selection window as described under Adding a File Definition for Entire Output Management:

```
11.07.00
             *** Entire Operations 3.2.1 ***
                                       13:50:46
 +----+ ESA Job J-1
   Job ended ok
                                          ! -+
         File Definition for Output Management (NOM):
             Output File (sequential file)
   Operating System ==> MVS/ESA Spool Type ==> JES2
                                           !
                                           !
       ==> _
 !
   File
   CC Type ==> _
            __ Recfm ==> __ Lrecl ==> ___ Blksize ==> __
   VolSer ==> __
  - +------
A Acti!
P Desc !
   ! D Delete M Modify
Comman ! Enter--PF1---PF2---PF3---PF5-----
          Help Add End Save
Enter-P !
   H +-----+
```

In this window you can define an output file of the job to be handled.

If the file name contains the activation escape character, a symbol replacement is performed using the job's active symbol table.

For VSE/ESA, the fields VolSer, Recfm, Lrecl, and Blksize are required.

Normally Entire Output Management identifies Report definitions by spool attributes. However, if Entire Operations triggers processing of output files, no such spool attributes exist. Instead, Entire Operations' attributes are passed to Entire Output Management as follows:

NOP Attribute	NO	OM Identification		
	OS/390	VSE/ESA	BS2000/OSD	
JOBNAME	Job name	Job name	PNAME	
USER ID	Destination	Destination	User ID	

## **Carriage Control Type**

Some operating systems (not OS/390) require that the carriage control type must be specified for an output file. Use one of the following:

Operating System	CC Type	Function	
BS2000/OSD	-	In BS2000/OSD only, if the file was created with RECFORM=(,M) or =(,A), CC type can be taken from the file's catalog entry, otherwise it must be specified in the CC Type field.	
	E	emens carriage control characters	
	A	SA code	
	M	IBM machine code	
OS/390	-	In OS/390, the carriage control type is taken from the file's catalog entry.	
VSE/ESA	A	ASA code	
	M	Machine code	

# **Handing Over Sysout and Files to Entire Output Management**

#### Repetition if File is Missing or Open

If the file to be handed over did not (yet) exist or was (not) yet closed, handover is tried up to five times. The time between the handover tries corresponds to the monitor wait time.

## **Copying Files Before Handing Over to Entire Output Management**

In the default settings, you can define that the sysout files are copied physically before handover to Entire Output Management.

The advantage of this is that exclusive use (as well as renaming and deleting) of the copy by Entire Output Management can still be looked at in Entire Operations. This, however, means that sysout files need more space.

## File Copy On Another ENTIRE System Server Node

Under the following conditions, the sysout copy is created on another node:

- The symbol SYSOUT-NODE-GLOBAL exists in the symbol table SYSDBA/A and contains a valid node number in the range between 1 and 255.
- In the target environment, the same PubIDs and BS2000/OSD user IDs exist as in the source environment.

## **Connection with a Defined Recovery Action**

Defined recovery actions for an erroneous job are only executed, after all activities for the handover of the sysout to Entire Output Management have been concluded, or after the maximum number of handover tries has been reached.

In case of a recovery action, the sysouts of all job runs are handed over to Entire Output Management. For further information, see Defining Recovery Action.

# Sysout Copy from UNIX / Windows NT to Mainframe

- To define the handover of sysout files from Unix or Windows NT to BS2000/OSD
  - Press PF9

The following window appears:

01.02.00 Owner SN Network WNT403A	*** Entire Operations 3.2.1 *** 08:38:17 End-Of-Job Checking + Actions WIN/NT Job APO1 Run Date
C Action + ! _ !	+ ns OA ! Sysout Copy from UNIX / Windows NT to Mainframe !
! ! ! ! !	Owner         SN         Sysout Node         31
	PF1PF3
P Descr. R Re !	Spool Class to be set after Completion ===> _ ! O Other ! User Rtn PF1 Help PF3 End PF9 ToMF !
Command => +-	

You can copy a UNIX or Windows NT sysout file to a BS2000/OSD system so that it can be handed over to the Output Management for instance.

The sysout node must differ from the execution node, and it must be a BS2000/OSD node.

The naming conventions for the copy is identical with the one for sysout files, which have been directly created on the mainframe. Even possibly present Exits for Sysout file names are run through).

Sysout copies are affected by the automatic file cleanup just as the original sysout.

Please note that the application of this function means an additional working effort for the Entire Operations Monitor, which depends upon the number of the handovers and from the size of the sysout files.

# Fields: Sysout Copy from UNIX / Windows NT to Mainframe

Field	Meaning
Sysout Node	a valid Entire System Server node on BS2000/OSD
Sysout Cat ID	BS2000/OSD Cat ID, which is to be used for the copied file (optional)
Sysout User ID	BS2000/OSD User ID, under which the copied sysout file is to be generated.

# **Special PF Keys: Sysout Copy from UNIX / Windows NT to Mainframe**

Key	Name	Function
PF9	Delete	Delete all input fields

# **Message Switching**

You can define or modify a message to be sent as the result of a defined event, or if the job terminated **ok** or **not ok**. This is especially useful to notify appropriate personnel of job failure.

The Entire Operations Monitor continues to send a message until it has been successfully transmitted. If a UNIX node has been defined for the recipient, the UNIX **mail** command is used to send the message.

# A message can be defined for any one event or at the job level according to All checks ok and Any check not ok

1. Type U in the line command input field of the appropriate event on the End-of-Job Checking and Actions screen. Press Enter.

The Message and Message Recipients window opens:

11.07.00 Owner EXAMI Network E60-I	PLE End	* Entire Oper- -Of-Job Check		ons M Rui	VS/ESA n	Job 3 Date	17:16:30 JOB-02
C Action  P u  -	! Occurrence !	PLE Networ of String Li Message and M	k E60-FLOW brary full essage Rec:	Job (	JOB-02	!	means Oi ok n.ok
	! to ==> ! !	Destination	Processor	Node ——		! ! !	****
PR PR A Activatio	! ! !					! ! !	0 Othe: User Rti
Enter-PF1	! Help	-PF3 End	Save	Delete	Menu	. !	 PF12 Menu

## Field Descriptions: Message and Message Recipients

The input fields have the following meaning:

Field	Description
Text	Text of message to be sent if associated event occurs. If the message contains an activation escape character, text replacement is performed from the active symbol table.
Destination	<ul> <li>Enter CONSOLE here to route the message to the operator console.</li> <li>If Con-nect is available, enter up to eight Con-nect user IDs.</li> <li>In OS/390 and VSE/ESA systems, enter user IDs as defined to the TP system, in BS2000/OSD, terminal names.</li> <li>UNIX: a valid user ID. UNIX is case sensitive (upper/lower case).</li> <li>UNIX and Windows NT: an e-mail address (as symbol value). On the UNIX system, a program to send e-mails must be available. See E-Mail on UNIX Systems. The "at" sign (@) must be entered (in the EBCDIC character set) as (a) on mainframes, for example: user(a)any.host. As Windows NT does not have a built-in sendmail command, a command line tool must be specified in the node definition.</li> </ul>
Туре	Messages: Type of destination  BS2000/OSD:  The processor name as related to the BS2000/OSD terminal name to be specified in the Destination column.  OS/390:  =COMPLET explicitly to a Com-plete user =TSO explicitly to a TSO user all operating systems:  =MAILBOX sends the message to the mailbox specified in Destination.
Node	Node from which the message is sent.

- 2. If a message has already been defined for the selected event, it appears together with the destination values in the above window. You can modify the message and destinations by overtyping the current values or define a new message by specifying the message text and destination.
- 3. Press PF5 (Save) to save the message or PF9 (Delete) to delete it.
- 4. Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen.

# E-Mail on UNIX Systems

To be able to send E-Mail on UNIX mashines from Entire System Server, the following **mail programs** must be available there:

AIX	mail
Tru64	sendmail
others	rmail

# **Defining End-of-Job Action User Routine**

You can specify a Natural user routine to be triggered by a specified event.

## To specify a user routine to be triggered

1. Type **X** in the line command input field of the appropriate event on the End-of-Job Checking and Actions screen. Press Enter.

The following window opens in which you can define a user routine:

Network E60-F1			Run 		
C Action	+			+ ans	O.
x P	!			!	
_	! Step	STEP1 returns Condition Co	ode = C0000	! ok	
_	!	Execute EOJ Action User Ro	outine	!	
_	!			!	
_	! Libra	ary ===>		!	
_	! User	Routine ===>		!	
_	!			!	
_	!			!	
******	! Enter	r-PF1PF3PF4PF5	PF9	-PF12 ! ****	* * *
_ C P	!	Help End Edit Save	Delete	Menu!	
_ PR	+			+	
	C Cond.	D Delete E Edit User Rtn	 ı J Job Var	 M Modify O Ot	he:
A Activation		Sysout T Output Mgmt U Us		-	
	covery S			11 11001011 0001	
	covery S	272000 - 000-1-00			
P Descr. R Red	-				

# Field Descriptions: Execute EOJ Action User Routine

Meaning of the input fields:

Field	Description
Library	Name of the Natural library containing the user routine.
User Routine	Name of the Natural user routine. To display a selection list for user routines available in a given library, first enter the name of a Natural library in the <b>Library</b> field, then enter an asterisk * in the <b>User Routine</b> field and press Enter.

## **Special PF Keys: Execute EOJ Action User Routine**

You can perform the following functions from the Execute EOJ Action User Routine window using these PF keys:

Key	Name	Function
PF4	Edit	Create or edit an end-of-job user routine.
PF9	Delete	Reset execution of a user routine.

- 2. Press PF5 (Save) to save the data.
- 3. Press PF3 (End) to close the window and return to the End-of-Job Checking and Actions screen.

# **Defining Other Actions**

# To define a job to be deactivated automatically, even if it ended not ok, you must use the Other Actions function

1. Enter **O** in the line command field of the appropriate event on the End-of-Job Checking and Actions screen. Press Enter.

The Other Actions window opens:

```
*** Entire Operations 3.2.1 ***
11.07.00
                                                  17:31:34
Owner EXAMPLE End-Of-Job Checking + Actions MVS/ESA Job JOB-02
Network E60-FLOW
                                      Run Date
______
          +----+ ans OA
C Action
          ! Step STEP1 returns Condition Code = C0000
                         Other Actions
          ! Accept the job if not ok ===> (Y/N)!
          ! (The job can be deactivated, if executed)
  ******* ! ---PF1---PF3-----PF5------PF9-------PF12--- !
  C P ! Help End Save Delete Menu
A Activation C Cond. D Delete E Edit User Rtn J Job Var M Modify O Other
P Descr. R Recovery S Sysout T Output Mgmt U User Messages X Action User Rtn
Command => _
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add
            End Save Up
                                  Down
```

2. In this window you can define other actions.

If you enter **Y** in the field **Accept the job if not ok**, the active job can be automatically deactivated, even if it ended **not ok**. Otherwise, the job remains active until a correction or manual deactivation.

## **Special PF Keys: Other Actions**

You can perform the following function from the Other Actions window using this PF key:

Key	Name	Function
PF9	Delete	Delete data entered here.

# **Active Job Networks - Overview**

Entire Operations allows extensive modification of job networks and jobs after activation.

This section explains the maintenance functions you can perform on active jobs and networks using the Active Job Networks option on the Main Menu.

For example, you can modify active copies of a job definition, including associated logical conditions, resources and JCL. All modifications to active jobs take place on the active data base and are valid for the current job run only, so that all original definitions on the master data base remain unchanged.

Your user profile must contain the appropriate authorization to access active networks.

This section covers the following topics:

- Active Data Base
- Maintaining Active Job Networks
- Maintaining Active Jobs
- Maintaining Active Conditions

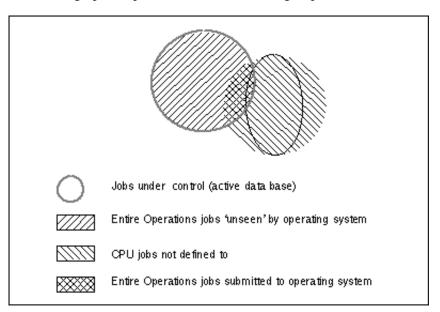
# **Active Data Base**

When Entire Operations activates a job network, a copy of the network defined in the master data base is made on the active data base and a run number assigned to it. Several copies of the same network can be in the active data base, each distinguished by its run number.

At this point, all jobs are ready for execution according to their dependencies. They are said to be 'in the active data base'. However, not all jobs in the active data base become operating system jobs: for example, dummy-type jobs or Natural programs are Entire Operations jobs which are not submitted to the operating system. As a result, we can distinguish between two groups of jobs in the computer center:

- **Jobs in the Entire Operations active data base** (including jobs not submitted to the operating system);
- Operating system jobs (including jobs not defined to Entire Operations).

Below is a graphic representation of these two groups:



The white circle contains all jobs under Entire Operations control. Entire Operations cannot control jobs that are not defined to it.

Jobs outside Entire Operations run on the computer unaffected and "unseen" by the Entire Operations Monitor. On the other hand, Entire Operations holds information on jobs that run 'unseen' by the operating system.

The active data base is located on the Entire Operations active data base and contains all operational information of the current run of the activated job networks.

You can access the active data base to maintain active networks and jobs, including logical conditions, resources and scheduling parameters.

The following subsections describe how you can maintain active job networks and individual active jobs.

# **Maintaining Active Job Networks**

#### To maintain active job networks

• Select the Active Job Networks option from the Main Menu.

The Active Job Networks screen appears:

Cmd	#Run		Network	Node	Description
	3			146	Time Range Test
_			BS2-31		_
_					DEMONSTRATION NETWORK
_	3				Exclusive Condition usage
_	12				I/O Conditions without events
_	4				Blank in the name
	1	SN	R-152930	148	Symbols trailed by Blanks
_	4	SN	S-MAILBOX	146	Some mailbox tests
_	7	SN	SN-E01	146	Completion-Codes, Job Duration
_ _ ***	****	****	*****	* Bott	tom of Data ****************

# **Selecting Range of Networks to be Listed**

You can specify the range of networks to be listed by entering **A**, **G**, **O** or **R** in the Selection field on the Active Job Networks screen and pressing Enter. For more information, see Section Network Maintenance, subsection Selecting Range of Networks to be Listed.

## **Column Headings: Active Job Networks**

The following table explains the column headings for the data listed on the Active Job Networks screen:

Field	Description
Cmd	One-character line command input field. For possible values, see Line Commands: Active Job Networks.
#Run	Number of currently active runs of the network.
Owner	Owner name for the network; first line shows prefix used to obtain the current list. Enter selection criteria in this field to display networks according to owner prefix. Use an asterisk * as a wildcard for entering selection criteria.
Network	Network name; first line shows prefix used to obtain the current list. Enter selection criteria in this field to display networks according to network prefix. Use an asterisk * as a wildcard for entering selection criteria.
Node	Execution node specified for the network as default for its jobs.
Description	Short description of network as defined in the original job network definition on the master data base.

You can perform several functions on active job networks using the available line commands and PF keys. These are described in the following two tables:

## **Line Commands: Active Job Networks**

Cmd	Description
A	List active jobs for the selected network.
N	Deactivate the selected network.
P	Display text description of selected network (browse mode only).
X	Display network execution history. See also Displaying Execution History for a Network.

# **PF Keys: Active Job Networks**

Key	Name	Function
PF7	Up	Scroll list backwards.
PF8	Down	Scroll list forward.
PF9	ATask	Display operating system information on all active tasks.
PF10	All	List all active jobs.
PF11	NxtSt	List next scheduled and manual network activations. See also Displaying Next Network Starts (System-Wide) in Section Scheduling a Job Network.

The following subsections give a more detailed description of the functions you can perform on active networks.

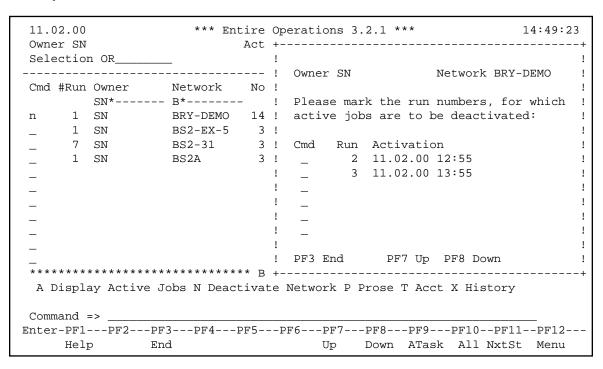
## **Deactivating an Active Job Network**

There are several ways of preventing or interrupting the execution of an active job network. These are described in the following subsections.

## Deactivate a Network before Submission of First Job

- To deactivate a network before the first job of an active network is submitted
  - 1. Type **N** in the line command field of the selected network on the Active Job Networks screen. Press Enter.

A window opens in which the active copies of the selected network in the active data base are listed by run number:



2. Select the run to be deactivated by entering any character in the appropriate line command field in the window. Press Enter.

#### Note:

The message **In Progress** indicates that the command has been accepted. The job is deactivated in **background** by the Monitor.

If the Monitor is not active, you can deactivate a job using the Special Functions - Deactivation in Foreground option of the System Administrator Services Menu.

3. Press PF3 (End) to close the window.

#### **Deactivate all Networks**

To halt the execution of all job networks, the system administrator can stop the Entire Operations Monitor. Jobs currently being executed continue until normal termination, unless they are explicitly cancelled from the operating system.

### **Stop a Running Network**

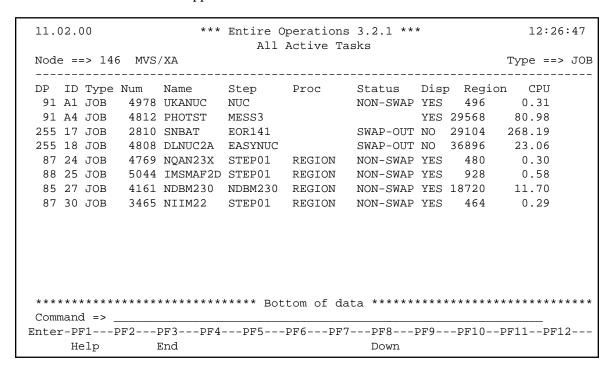
To interrupt a running network, you simply need to add an input condition, e.g. WAIT-HERE, for the job before which the network is to stop running, and ensure that it will not be set. For more information, see the subsection Maintaining Input Conditions of Active Jobs.

To restart the network at the point of interruption, you can manually set the input condition, or remove it from the active job definition. (see the subsection Maintaining Active Jobs).

## **Displaying Operating System Information on Active Tasks**

- To display operating system information on active tasks
  - 1. Press PF9 (ATask) from the Active Job Networks screen.

The All Active Tasks screen appears:



This screen displays information on all active tasks running on the operating system, including jobs not defined to Entire Operations (MVS only).

## **Listing Active Tasks according to Node**

#### To select an Entire System Server node for which the tasks are to be listed

1. Enter a node number in the Node field in the upper left-hand corner of the All Active Tasks screen.

(Alternatively, you can enter an asterisk \*, press Enter to open a selection window for nodes and mark a listed node with any character.)

- 2. Press Enter.
- 3. The All Active Tasks screen lists tasks for the selected node only.

#### **Listing Active Tasks according to Type**

#### To list active tasks according to type

1. Enter one of the following values in the Type field in the upper right-hand corner of the screen (shortest possible input underlined):

Type	Description			
(blank)	Show all types.			
*	Show all types.			
<u>I</u> NI	JES2 initiator.			
<u>J</u> OB	Batch jobs (default).			
<u>S</u> TC	Started tasks.			
<u>T</u> SU	TSO users.			

The operating system information which appears immediately after the node number cannot be modified.

2. Press Enter.

The All Active Tasks screen lists tasks of the selected type only.

## **Column Headings: All Active Tasks**

The following table explains the column headings for the data listed on the All Active Tasks screen:

Field	Description				
DP	Dispatching priority assigned by operating system.				
ID	JES2 batch initiator identifier (for JOB-type tasks only).				
Type	Type of job. Corresponds to the value entered in Type field (see the subsection Listing Active Tasks according to Type).				
Num	Operating system job number.				
Name	Operating system job name (job card name).				
Step	Name of job step currently being executed.				
Proc	Name of procedure currently being executed.				
Status	Status of address space. Possible values:				
	V=R	Running in real memory.			
	TERM	Address space is terminating.			
	NON-SWAP	Address space cannot be swapped.			
	SWAP-OUT	Address space is swapped out.			
	(blank)	Address space is swapped in.			
Disp	Dispatchability of address space:				
	YES	Address space is dispatchable.			
	NO	Address space is not dispatchable.			
Region	Amount of real storage used by address space (in Kbytes).				
CPU	Amount of CPU consumed by address space (to one-hundredth of a second).				

Operating system information is offered as a view only and cannot be modified.

# **Listing Next Scheduled and Manual Network Activations**

## To list all next scheduled and manual network activations

1. Press PF11 (NxtSt) on the Active Job Networks screen.

The Next Scheduled and Manual Network Activations screen appears.

For further information, see the subsection Displaying Next Network Activations (system-wide) in Section Scheduling a Job Network.

## **Displaying Execution History for a Network**

- To display execution history for a selected network
  - 1. Type **X** in the line command input field of the appropriate network on the Active Job Networks screen.
  - 2. Press Enter.

The History screen appears for the selected network.

For further information, see the subsection Displaying Execution History for a Network in Section Scheduling a Job Network.

# **Listing All Active Jobs**

- To list all active jobs under the control of Entire Operations
  - Press PF10 (All) on the Active Job Networks screen.

The Active Jobs screen appears:

Submit User ID	12.03.00		*** Entire	: Operat		2.1 ***	* 11:00:4		
EXAMPLE E20-DYN-01 - 303 10:47 Activation Net 08.09 1  EXAMPLE E20-DYN-01 - 304 10:47 Activation Net 10.09 1  EXAMPLE E40-REC-01 E40-J01 1686 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1686 1907 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1686 1909 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1686 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1687 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1687 1908 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J099999 1687 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1688 16:00 E40-J02-PARM SET TO SE  ***********************************	Selection AW_		AC			:	Submit User ID		
_ EXAMPLE				Run	JobId	Time	Message		
EXAMPLE E20-DYN-01 - 304 10:47 Activation Net 10.09 1  EXAMPLE E40-REC-01 E40-J01 1686 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1686 1907 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1686 1909 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1686 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1687 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1687 1908 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1687 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1688 16:00 E40-J02-PARM SET TO SE  ***********************************	*	*	*						
EXAMPLE E40-REC-01 E40-J01 1686 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1686 1907 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1686 1909 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1686 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1687 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1687 1908 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J99999 1687 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1688 16:00 E40-J02-PARM SET TO SE  ***********************************	_ EXAMPLE	E20-DYN-01	-	303		10:47	Activation Net 08.09		
EXAMPLE E40-REC-01 E40-J02 1686 1907 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1686 1909 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1686 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1687 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1687 1908 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1687 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1688 16:00 E40-J02-PARM SET TO SE  ***********************************	_ EXAMPLE	E20-DYN-01	_	304		10:47	Activation Net 10.09		
EXAMPLE E40-REC-01 E40-J03 1686 1909 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1686 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1687 13:13 E40-J02-PARM SET TO SE  EXAMPLE E40-REC-01 E40-J02 1687 1908 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J03 1687 1910 13:16 Ended ok  EXAMPLE E40-REC-01 E40-J99999 1687 13:16 Dummy Job terminated  EXAMPLE E40-REC-01 E40-J01 1688 16:00 E40-J02-PARM SET TO SE  ***********************************	_ EXAMPLE	E40-REC-01	E40-J01	1686		13:13	E40-J02-PARM SET TO SE		
_ EXAMPLE	_ EXAMPLE	E40-REC-01	E40-J02	1686	1907	13:16	Ended ok		
_ EXAMPLE	_ EXAMPLE	E40-REC-01	E40-J03	1686	1909	13:16	Ended ok		
_ EXAMPLE	EXAMPLE	E40-REC-01	E40-J99999	1686		13:16	Dummy Job terminated		
_ EXAMPLE	EXAMPLE	E40-REC-01	E40-J01	1687		13:13	E40-J02-PARM SET TO SE		
_ EXAMPLE	- EXAMPLE	E40-REC-01	E40-J02	1687	1908	13:16	Ended ok		
_ EXAMPLE E40-REC-01 E40-J01 1688 16:00 E40-J02-PARM SET TO SE ***********************************	EXAMPLE	E40-REC-01	E40-J03	1687	1910	13:16	Ended ok		
_ EXAMPLE E40-REC-01 E40-J01 1688 16:00 E40-J02-PARM SET TO SE ************************************	EXAMPLE	E40-REC-01	E40-J99999	1687		13:16	Dummy Job terminated		
A Sched.Parms C Cancel D Deact E Edit G Gen.JCL H Hold I Input Cond J JCL	- EXAMPLE	E40-REC-01	E40-J01	1688			_		
-	 *******	*****	* * * * * * * * * * *	*****	******	****	*****		
-	A Sched Parms C Cancel D Deact F Edit G Gen JCL H Hold I Input Cond J JCL								
TERES. MEMODILY OFBOLE RECISE RESIDUALES SYSOLE OFREIERSE W.WALLING TOF	L Res. M Modify O EOJ P Prose R Resubmit S Sysout U Release W Waiting for								
Command =>									
Enter-PF1PF2PF3PF4PF5PF6PF7PF8PF9PF10PF11PF12									
Help Add End ACond Save Up Down ATask Left Right Menu									

This Active Jobs screen lists **all** active jobs under the control of Entire Operations. Additionally, network runs are listed where activations are planned and in the process, but not yet completed. By contrast, the Active Jobs screen under Maintaining Active Jobs lists all active jobs in the network selected from the Active Job Networks screen.

### Restrictions

If the user is of type A (Administrator), or if the user has access to the owner SYSDBA, then all active jobs are displayed.

In all other cases, the following active jobs are displayed:

- from networks of the current owner
- from networks of owners, to which the user has access
- from networks, for which the user has been granted access (see Authorizing Other Users to Access a Network) in Section Network Maintenance.

#### Listing All Active Jobs according to Owner, Network and Job

You can list active jobs for selected Owner(s), Network(s) and/or Job name(s).

Use an asterisk \* as a wildcard to enter selection criteria in the fields preceded by an asterisk \* directly below the respective column headings.

Press Enter to list the active jobs which satisfy the selection criteria.

## Listing All Active Jobs according to Submit User ID

Enter a Submit Userid in the field in the upper right-hand corner of the screen and press Enter to list only those active jobs with the selected Submit User ID.

The entered Submit Userid is **not** converted in capital letters. The exact spelling is required. Thus, UNIX and Windows NT userids can be entered as well.

## **Listing All Active Jobs according to Status**

See the subsection Listing Active Jobs according to Status.

## **Column Headings: All Active Jobs**

The following table explains the column headings for the data listed on the Active Jobs screen:

Column	Description	
С	One-character line command input field. For possible values, see Line Commands: Active Jobs.	
Owner	The network owner. Use an asterisk * as a wildcard for entering selection criteria.	
Network	The network to which the job belongs. Use an asterisk * as a wildcard for entering selection criteria.	
Job	The job name as defined to Entire Operations. Use an asterisk * as a wildcard for entering selection criteria. Lines referring to a network run are identified by a "-" in this field.	
Run	Job run number automatically assigned at activation time. Together with the job name, the job run number uniquely identifies an active copy of a job.	
JobId	Job identifier as assigned by the operating system or by the job entry subsystem.	
Time	Last action or check time for the job.	
Message	Last message issued for the job by Entire Operations. Press <pf11> (Right) or <pf10> (Left) to display the full message text. For a list of possible messages and their meaning, see Messages in Active Job Display.</pf10></pf11>	

### **Line Commands: All Active Jobs**

For a description of the available line commands, see Line Commands: Active Jobs.

#### Note:

Most of these line commands refer to a specific job and may therefore not be used in lines referring to network runs. For these lines, only the commands  $\bf D$  and  $\bf A$  are allowed.

### **PF Keys: All Active Jobs**

For a description of available PF keys, see PF Keys: Active Jobs.

# **Maintaining Active Jobs**

- To access the active data base (of one network) for active job maintenance
  - 1. Type **A** in the line command input field of the selected network on the Active Job Networks screen.
  - 2. Press Enter.

The Active Jobs screen appears:

12.03.00 Owner EXAMPLE Selection AW			***		_			1 *** 11:03:26 Network E60-FLOW Run from 1872_ to 1872_
C	Job *	Run	Тур	JobId	Node	Date	Time	Message
- - - - - - - -	JOB-01 J07 JOB-012 JOB-013 JOB-014 JOB-015 JOB-019 JOB-02 JOB-03 JOB-04 JOB-05	1872 1872 1872 1872 1872 1872 1872 1872	MAC MAC MAC DUM MAC MAC MAC MAC MAC DAT MAC DUM	1570	146 146 146 146 146 146 146 146 146		11:03 11:03 11:03 11:03 11:03 11:03 11:03 11:03 11:03	Job executing (submitted 11: Job 1570 waiting in Spool In E60-JOB1-O - 1872 - RUN not E60-J012-O - 1872 - RUN not E60-J013-O - 1872 - RUN not E60-J014-O - 1872 - RUN not E60-J0B1-O - 1872 - RUN not E60-J0B2-O1 - 1872 - RUN not E60-J0B3-O - 1872 - RUN not E60-J0B3-O - 1872 - RUN not E60-J0B4-O - 1872 - RUN not
A So	ched.Parms C esource M Momand => r-PF1PF2-	Cancedify (	el D Do D EOJ :	eact E l P Prose	Edit R Re	G Gen	.JCL H t S Sys	**************************************

This screen lists all active jobs in the network.

You can use line commands and PF keys on this screen to modify active jobs.

Modifications of active jobs are always ad-hoc changes, that is, they are effective for this specific run of the job only and do not affect any definition made on the master data base. This also applies to changes made to active job JCL, input conditions and end-of-job checking and actions.

### **Column Headings: Active Jobs**

The following table explains the column headings for the data listed on the Active Jobs screen:

Column	De	Description					
С		One-character line command input field. For possible values, see Line Commands: Active Jobs.					
(no	The	ere is another column without a heading between C and Job. Possible values:					
heading)	D	This is a dummy job. For more information, see the subsection Job Types in Section Job Maintenance.					
	R	This is a recovery job. For more information, see Section End-of-Job Checking and Actions, subsection Defining Recovery Action.					
Job	Job name as defined to Entire Operations. Use an asterisk * as a wildcard for entering selection criteria.						
Run		Job run number automatically assigned at activation time. Together with the job name, the job run number uniquely identifies an active copy of a job.					
Тур	Job	Job type as defined to Entire Operations.					
JobId	Job	Job identifier as assigned by the operating system or by the job entry subsystem.					
Node	Exe	Execution node of the machine designated for the job.					
Date	Las	Last action or check date for the job.					
Time	Las	Last action or check time for the job.					
Message	(Le	st message issued for the job by Entire Operations. Press <pf11> (Right) or <pf10> eft) to display the full message text. For a list of possible messages and their meaning, see essages in Active Job Display.</pf10></pf11>					

### **Line Commands: Active Jobs**

Use the following line commands to perform the described functions on the active jobs listed on the Active Jobs screen:

Cmd	Description	
A	For active networks: Modify scheduling parameters for the active job.  For planned network runs: Modify the start time.	
C	Cancel the active job from the operating system.	
D	For active networks: Deactivate the selected job from the active data base, including any definitions made at job level (conditions, end-of-job handling etc.).  For planned network runs: Cancel the planned job activation.	
Е	Edit the activated JCL for the selected active job.	
G	(Re-)generate the dynamic JCL for this activation.	
Н	Set active job in HOLD status.	
I	Modify the defined input conditions for the active job.	
J	Define job control for the active job.	
L	Maintain resources for the active job.	
M	Modify definition for the active job.	
О	Modify end-of-job checking and actions for the active job.	
P	Prose. Display text description of the job.	
R	Resubmit active job.	
S	Browse job sysout.	
U	Release active job from HOLD status.	
W	Display all pending prerequisites for the active job.	

### **Special PF Keys: Active Jobs**

Use the following PF keys to perform the described functions on the active jobs listed on the Active Jobs screen:

Key	Name	Function
PF2	Add	Add an active job definition.
PF4	ACond	Maintain active conditions.
PF9	ATask	Display operating system information on active tasks.
PF12	Menu	Return to Entire Operations Main Menu.

The following subsections describe in more detail the ad-hoc functions you can perform on active jobs using line commands and PF keys (explanations are not necessarily given in the same order as the list of associated line commands above).

# **Listing Active Jobs according to Status**

• You can list active jobs according to their processing status by entering one or more of the following values in the Selection field on the Active Jobs screen and pressing Enter:

Value	Description
A	All active jobs (default).
Е	All active jobs waiting for at least one event.
Н	All jobs in HOLD.
I	All jobs in the scheduling system input queue.
N	All jobs with <b>job not OK</b> terminating status.
О	All jobs with <b>job OK</b> terminating status.
S	All submitted jobs.
Т	All terminated jobs.
W	Planned network runs waiting for activation.
X	All jobs in execution.

• Alternatively, you can enter an asterisk \* in the Selection field and press Enter, to open the following selection window:

```
*** Entire Operations 3.2.1 *** 15:17:46

Active Jobs Network DEMO-NET
 11.02.00
                                                                              15:17:46
Owner SN
Selection ?_
                                                             Run from 198__ to 198__
Status Preselection !
!:24 Dummy Job beendet
     Job!
     *----!
    MESSA! ! !:24 Dummy Job beendet

JOB1 ! W Waiting for Activation !:27 Ok beendet

JOB2 ! A All active Jobs !:00 Letzte Startzeit 11.07 11:00 u

JOB4 ! E Waiting for an event !:22 MACRO Programm DYN01 nicht gef

RECOV! H Jobs in Hold !:22 LIBRARY FULL - 198 - RUN nich

JOB3 ! S Submitted !:00 Letzte Startzeit 11.07 11:00 u

! I In Spool Input Queue !

! X Executing !
     MESSA !
          ! T Terminated
           ! O Ended ok
           ! N Ended not ok
                                                 !ta **************
A Sched.P ! Select ==> A_____ !JCL H Hold I Input Cond L Resource
M Modify +----+ Release W Waiting for
Command => ____
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help Add End ACond Save Up Down ATask Left Right Menu
```

Enter one or more values in the Select ==> field and press Enter to list the active jobs with the selected status(es).

# **Selecting Active Jobs According to Run Number**

By default, only jobs of the last run are displayed.

To list more job runs, enter selection criteria in the **Run from ... to** field in the upper right-hand corner of the screen and press Enter.

For example, if you enter 7 in the Run from field, all jobs with run number equal to or greater than 7 are listed. If you enter 4 in the Run from field and 7 in the to field, all jobs with run numbers 4, 5, 6 and 7 are listed.

This setting is kept until you modify it or until you display the Active Jobs screen for another network.

## Adding a Job to the Active Network

- To add a job to the active data base for the current run of an active job network
  - 1. Press PF2 (Add) from the Active Jobs screen.

A window opens in which you can define the new active job:

2. Enter a new job definition for the current network run.

### Field Descriptions: Active Job Definition

The input fields in this window have the same meaning as for the Master Job Definition screen in the Network and Job Maintenance facility (see Section Job Maintenance, subsection Field Descriptions: Master Job Definition).

The Active Job Definition window, however, contains the following additional fields which are protected:

Field	Description
Activated	The activation date and time of the network.
Modified	User ID and time stamp of the last modification.
Run	Run number of the current job run.

### **PF Keys: Active Job Definition**

Key	Name	Function		
PF2	Add	Add an active job to the active network. No master job definition is created. JCL is automatically loaded after the job has been added.		
		Note: A job is not automatically activated after being added to an active network. The job is first put into HOLD status and additional definitions can be added, for example active time frames or similar. To activate the job, you must enter the line command U on the Active Jobs screen.		
PF4	Edit	Edit JCL or a Natural program, according to job type.		
PF7	Symb	Display the active symbol table specified in the Symbol Table field. You can define or modify it.		
PF9	Spec	Define special parameters for operating-system-dependent job definitions.		

- 3. Press PF5 (Save) to add the active job.
- 4. Press PF3 (End) to close the Active Job Definition window.

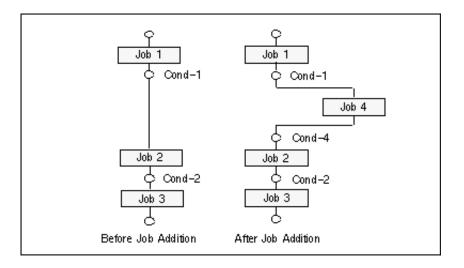
The new active job(s) appear on the Active Jobs screen.

Adding a job to an active job network involves temporarily changing the network structure and job flow. This is achieved with the minimum of effort, as the following example shows.

#### **Example: Ad-hoc Addition of a Job to an Active Job Network**

You may wish to add a job to a network for one specific run.

This example illustrates the addition of a job to a network consisting of 3 sequential jobs. The new job (Job 4) is to be inserted between Job 1 and Job 2:



### To achieve a sequential job flow, proceed as follows

- 1. Add the new active job using the Active Job Definition window;
- 2. Define Cond-1 as input condition for Job 4;
- 3. Define **Cond-4** as output condition in end-of-job handling for Job **4**;
- 4. Change the input condition defined for Job 2 (Cond-1) to Cond-4.

**Job 4** is executed for the current run of the job network only.

If you wish this change to be permanent, use this procedure on the master data base.

# Modifying a Job in an Active Network

### To modify the definition of an existing job in an active job network

- 1. Type **M** in the line command field of the selected job on the Active Jobs screen.
- 2. Press Enter.

The Active Job Definition window opens displaying all current values of the existing job. You can modify any job parameter.

- 3. Press PF4 (Edit) to edit any JCL or Natural program according to job type.
- 4. Press PF5 (Save) to save all changes.
- 5. Press PF3 (End) to close the window and return to the Active Jobs screen.

These changes only affect the current run of the job.

#### **Notes:**

- The current user ID is stored as the last modifying user of the job for all definition and JCL modifications. This user ID is taken as the **submit security user ID**.
   If the Monitor does not use its own user ID, see the subsection Monitor Defaults Submit Security User Type in the Entire Operations Administration Documentation.
- 2. It may be necessary to release the active job after the modification with the line command  $\mathbf{R}$  (resubmit). This causes a new check of all prerequisites.

# **Special Type D - Execution as a Dummy**

In an active job definition, it is possible to modify the field 'Special Type' from 'empty' to 'D' (execution as a dummy), and vice versa.

- If 'Execution as a Dummy' is **deleted**, then an automatic re-loading of the JCL will occur. In case of active jobs of the NET type, the sub-network is activated.
- If 'Execution as a Dummy' is **set**, then the job will be executed as a dummy job. In this case, it does not play any role, whether already active JCL or an active sub-network were loaded.

### **Define Job Control for the Active Job**

- You can insert or modify the job control definition of an active job
  - 1. Type **J** in the line command field of the selected job on the Active Jobs screen.
  - 2. Press Enter.

The JCL Definition window opens displaying the current definitions.

How to modify the JCL definition is described in Section Job Maintenance.

#### Note:

The modifications to the JCL definition of an active job are only valid for the current run.

# **Exchanging Active JCL**

When modifying an active job, you can specify another JCL member and library by overtyping the current values in the corresponding input fields. This allows you to run a different job in place of the old one using the same input conditions, end-of-job handling, etc. The replacement is valid for the current network run only.

When you have specified a different JCL member and/or library, Entire Operations replaces the old JCL with the new and notifies you of the replacement with a message. The new member can use the Dynamic JCL Generation facility.

#### Note:

After exchanging the JCL, the job must be restarted with the line command  $\mathbf{R}$  (repeat). For further information, see Resubmitting an Active Job.

# Special Type 'D' - Dummy

If you set the 'special type' of 'empty' to 'D' ('execution as a dummy job') for an active job, then the active job will be executed from this point in time in case of a resubmission as a temporary dummy job. For further information, see Special Type D in Section Job Maintenance.

If you set the 'special type' of 'D' ('execution as a dummy job') to 'empty' for an active job, then the active JCL is automatically generated, provided that it is not available yet. For further information, see Special Type D in Section Job Maintenance. To restart the job, you have to use the line command R (resubmit) afterwards (see Resubmitting an Active Job).

### **Deactivating a Job in an Active Network**

- To prevent the execution of a certain job in an active network for the current run
  - 1. Type **D** in the line command input field of the selected job on the Active Jobs screen. Press Enter.
  - 2. A window opens in which you must confirm deactivation by typing Y in the appropriate field:

```
11.02.00
                    *** Entire Operations 3.2.1 ***
                                                          11:02:24
                            Active Jobs
                                                 Network DEMO-NET
Owner SN
Selection A_
                                             Run from 199__ to 199_
-----
              Run Typ JobId Node Date Time Message
    *_____
            199 DUM 148 11.07 09:15 Dummy Job beendet
   MESSAGE
   JOB1
             199 JOB 3640 148 11.07 09:15 Ok beendet
           199 DUM 148 11.07 09:30 PAPER-READY - 199 - RUN nicht
   JOB2
   RECOVER!
                                                  ! 199 - RUN nich
   JOB3 ! Please confirm
                                                   ! - RUN nicht gef
           ! the Deactivation of JOB2
           ! by entering 'Y' ===> _
            ! PF3 End
************************** Bottom of Data *********************
A Sched.Parms C Cancel D Deact E Edit G Gen.JCL H Hold I Input Cond L Resource
M Modify O EOJ P Prose R Resubmit S Sysout U Release W Waiting for
Command => _
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add End ACond Save Up Down ATask Left Right Menu
```

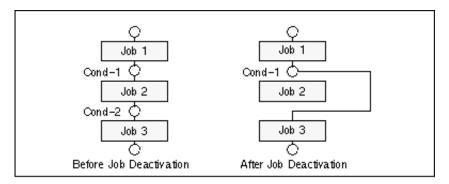
3. Press Enter to deactivate the job.

The job is deactivated in **background** by the Monitor.

Deactivating a job from the active network involves deleting it from the active job network and restructuring the active network in order to ensure uninterrupted job flow. The following example illustrates job deactivation by bypassing a job in an active network consisting of three sequential jobs:

#### **Example: Ad-hoc Deactivation of a Job**

The network in the following figure is to run without Job 2:



### To ensure uninterrupted job flow, proceed as follows

- 1. To prevent Job 2 from running, it is sufficient to delete its input condition Cond-1. If you deactivate Job 2 from the Active Jobs screen, the input condition is automatically deleted;
- 2. Replace input condition for Job 3 (Cond-2) by input condition Cond-1 using the MODIFY command for Cond-2.

The current run of the job network skips Job 2.

If you wish to deactivate a job that is currently running (interrupt its execution), you must cancel it from the operating system before deactivation (see the subsection Cancelling, Holding and Releasing Active Jobs).

## **Cancelling a Planned Job Activation**

- To cancel the planned activation of a job in a planned network run that is waiting for activation (jobs listed when W is entered in the Selection field at the top left of the Active Jobs screen)
  - 1. Type **D** in the line command input field of the selected job on the Active Jobs screen.
  - 2. Press Enter.
  - 3. A window opens in which you must confirm cancellation:

```
*** Entire Operations 3.2.1 ***
                                                     11:06:27
12.03.00
                                                Network E60-FLOW
                           Active Jobs
Owner EXAMPLE
Selection AW____
                                               Run from 1____ to 2000_
    Job
               Run Typ JobId Node Date Time Message
              1771
                                 13.03 00:00 Symbol Prompting in Progress
           1860
1862
                       16.08 00:01 Awaiting Symbol Prompting
21.08 00:00 Awaiting Symbol Prompting
                                 16.08 00:01 Awaiting Symbol Prompting
            +-----+ ol Prompting
                                                     ! ol Prompting
           ! Please confirm
                                                     ! ol Prompting
           ! Start Cancel of E60-FLOW (1860)
                                                     ! ol Prompting
           ! by entering E60-FLOW
                                                     ! ol Prompting
                                              _____! ol Prompting
                                                     ! ol Prompting
*****************
A Sched.Parms C Cancel D Deact E Edit G Gen.JCL H Hold I Input Cond J JCL
L Resource M Modify O EOJ P Prose R Resubmit S Sysout U Release W Waiting for
Command => _
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12--
     Help Add End ACond Save Up Down ATask Left Right Menu
```

- 4. Enter the name of the job to be cancelled.
- 5. Press Enter to cancel the planned job activation.

# **Maintaining Input Conditions of Active Jobs**

You can define new input conditions for an active job, or delete or modify existing conditions.

- To invoke the Input Condition Maintenance facility for an active job
  - 1. Type **I** in the line command field of the selected job on the Active Jobs screen.
  - 2. Press Enter.

A list of input conditions for the selected job appears.

This screen has the same format as the Input Condition Maintenance screen in the Job Maintenance facility on the master data base (see the subsection Input Condition Maintenance in Section Job Maintenance).

You can now maintain input conditions in the same way as described for the original definition, except that modifications to conditions for active jobs are valid for the current job run only.

# **Display Jobs Concatenated with the Active Input Condition**

This screen contains other headers than the corresponding function for master input conditions (see Adding Master Input Condition in Section Job Maintenance).

```
*** Entire Operations 3.2.1 3.2.1 *** 17:26
Input Conditions Maintenance Job B-FILESILO
04.02.00
                                                       17:26:59
Owner REQUEST
                                     Lauf 10 Datum 04.02.00
Network R302137
! Owner REQUEST
                            Condition FILESILO-START
! Network R302137A
                     Ref.type ABS
! Output Condition of
                              Input Condition for
  Owner Network Job Run ! Owner Network Job Run ! ! R302137 B-FILESILO 10!
!
!
!
!
  Up Down
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Help Add End ACond Save Up Down
```

# **Modifying End-Of-Job Checking and Actions for Active Jobs**

To modify the end-of-job checking and actions for the current run of a specific job

- 1. Type **O** in the line command input field of the selected job on the Active Jobs screen.
- 2. Press Enter.

The End-Of-Job Handling window opens displaying the current definitions.

You can modify event and action definitions in the same way as described in Section End-Of-Job Checking and Actions.

#### Note:

Any modifications made to end-of-job handling parameters of an active job are valid for the current job run only.

# **Maintaining Resources for Active Jobs**

You can also modify resources for the current run of an active job without changing the original

resource specification on the master data base for future job runs

- 1. Type L in the the line command input field of the selected job on the Active Jobs screen.
- 2. Press Enter.

A window opens with a list of resources in the same format as for the original resource specification.

You can modify the resources for the active job in the same way as described in the subsection Defining Prerequisite Resources in Section Job Maintenance.

This command can be useful if different job runs require different amounts of a specific resource, for example paper or tape drives.

# **Modifying Scheduling Parameters for Active Jobs**

You can modify the scheduling parameters for a specific job run without changing the originally

defined job schedule table

- 1. Type **A** in the line command input field of the selected job on the Active Jobs screen.
- 2. Press Enter.

The Schedule Definition window opens displaying the current schedule values in the same format as defined for the job on the master data base.

You can modify the schedule in the same way as described in the subsection Scheduling a Job in Section Job Maintenance.

# **Cancelling, Holding and Releasing Active Jobs**

Operating system jobs in the Entire Operations active data base can be handled directly from the Active Jobs screen in Entire Operations.

When Entire Operations submits jobs to the operating system, they are assigned a job number which appears on the Active Jobs screen. In MVS and MVS/XA systems, Entire Operations can issue JES operator commands automatically via line commands.

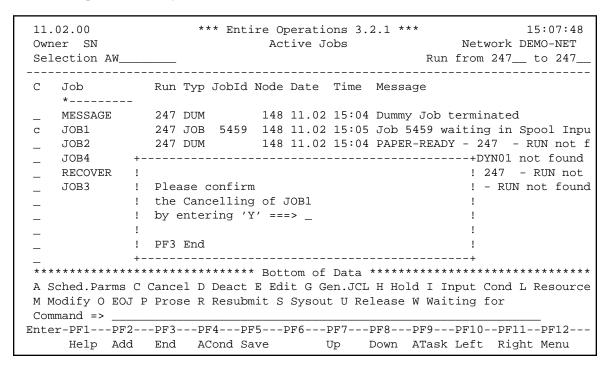
#### Note:

In BS2000/OSD, console commands are issued.

### **Cancelling Active Jobs**

### To cancel an active job from the operating system

- 1. Enter **C** in the line command input field of the appropriate job on the Active Jobs screen.
- 2. Press Enter.
- 3. A window opens in which you can confirm cancellation:



A cancelled job cannot be released for further processing.

### **Holding Active Jobs**

### To stop a job (put it in HOLD status)

- 1. Enter **H** in the line command input field of the appropriate job on the Active Jobs screen.
- 2. Press Enter.

The message ==> H-Cmd executed <== appears in the Message column for the job.

3. Press Enter again.

The message Job set to Hold appears in the Message column for the job.

Command only has effect if job is not yet submitted.

### **Releasing Active Jobs**

### To release a job from HOLD status and allow it to continue

- 1. Enter **U** in the line command input field of the appropriate job on the Active Jobs screen.
- 2. Press Enter.

The message ==> U-Cmd executed <== appears in the Message column for the job.

3. Press Enter again.

The message Job released from Hold appears in the Message column.

#### Note:

To be able to use the RELEASE (U) and CANCEL (C) line commands in BS2000/OSD, the active and passive Entire System Server console server must be available (see the Entire System Server User's Guide). If the execution node of the job is 148, the BS2000 online user ID must be the same as the user ID on the node where the console servers are running.

# **Browsing through Active Job Sysout**

You can view the sysout of an active job after job termination.

### To display the terminated job sysout

- 1. Type S in the line command field of the selected job.
- 2. Press Enter.

If the job has been resubmitted or rescheduled several times, several job IDs can exist for the selected job. If this is the case, a window opens with a list of job IDs in the following format:

11.02.00 Owner SN Selection WAE										Netwo	rk DEM	2:28:15 MO-NET to 167
	Job	Run	Typ	JobId	Node	Date	Time	+- !				!
	*							!	Owner	SN		!
_	MESSAGE	167	DUM		148	11.02	09:15	!	Network	DEMO-	-NET	!
S	JOB1	167	JOB	4705	148	11.02	09:16	!	Job	JOB1		!
_	JOB2	167	DUM		148	11.02	11:00	!	Run	167		!cee
_	JOB4	167	MAC		148	10.02	23:55	!				!nd
_	RECOVER	167	JOB		148	11.02	00:00	!	Select	a Job	<pre>Id:</pre>	!ot
l _	JOB3	167	JOB		148	11.02	11:00	!				!cee
l _								!	Current:	X	4727	!
_								!	Previous	: _	4705	!
l _								!		_		!
_								!		_		!
_								!		_		!
**************************************				_		!***						
A S	A Sched.Parms C Cancel D Deact E Edit G Gen.JCL !				!rce							
M M	odify O EOJ E	Pros	se R	Resubr	nit S	Sysout	U Rel	L!	PF3 End			!
Com	Command =>++											
Ente	r-PF1PF2	PF3-	PI	74PI	75I	PF61	PF7I	PF8-	PF9P	F10	PF11	PF12
	Help Add	End	A	Cond Sa	ave	Ţ	Jp I	Down	ATask L	eft I	Right	Menu

The top half of the window identifies the job by owner, job network, job name and run number, the bottom half contains a list of job IDs; the job ID assigned for the current run is at the top, followed by previous runs.

- 3. Mark the job ID of the run for which you wish to see the sysout with any character.
- 4. Press Enter.

If only one job sysout exists for the selected job, this window is bypassed and the sysout is displayed immediately.

In browse mode, the job sysout is presented in Editor format and you can use Editor PF keys and browse commands:

```
Job SNCOL80 (6181) Type SM File 1------ Columns 001 072
                                                     SCROLL===> CSR
 ***** **************************** top of data ********************
                          JES2 JOB LOG -- SYSTEM DAEF
 00001 1
 00002 ----- JOB 6181 IEF097I SNCOL80 - USER SN
                                                  ASSIGNED
 00003 15.57.21 JOB 6181 $HASP373 SNCOL80 STARTED - INIT 3 - CLASS K - SYS
 00004 15.57.21 JOB 6181 IEF403I SNCOL80 - STARTED - TIME=15.57.21
 00005 15.57.21 JOB 6181 IEF404I SNCOL80 - ENDED - TIME=15.57.21
 00006 15.57.21 JOB 6181 $HASP395 SNCOL80 ENDED
 00007 0----- JES2 JOB STATISTICS -----
 00008 -
        21 SEP 91 JOB EXECUTION DATE
 00009 -
               22 CARDS READ
 00010 -
               44 SYSOUT PRINT RECORDS
00010 -
00011 -
            0 SYSOUT PUNCH RECORDS
 00012 -
                2 SYSOUT SPOOL KBYTES
00012 - 2 SYSOUT SPOOL KBYTES
00013 - 0.00 MINUTES EXECUTION TIME
 Enter-PF1---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help End Quit Rfind Up Down Left Right Curso
```

#### Notes:

#### 1. Name of sysout file

In BS2000/OSD, UNIX and Windows NT the sysout collection file name appears in the upper left-hand corner of the screen.

#### 2. Automatic Logon to the operating system server

Before a sysout file is displayed, Entire Operations checks to see whether the user is allowed to access the sysout file.

If necessary, an automatic logon is carried out with the user ID, which is entered for the user as a standard user ID for the operating system server (see Entire Operations Administration Documentation).

If this automatic logon does not function, for BS2000 files a further attempt will be made with the BS2000 user ID from the fully qualified file name.

If this was successful, the current user ID is set accordingly for the operating system node. If the user **does not** (implicitly or explicitly) log on to the operating system server with the required access rights, via which the sysout is to be accessed, then the sysout cannot be displayed.

### **OS/390 Sysout Special Commands**

In addition to the standard Editor browse commands, the following special commands are available to display selected sysout files:

Command	Description
[FILE] X	Display sysout file number X (e.g. FILE 4).
[FILE] name	Display sysout file with name name (e.g. FILE SO).
[FILE] name	Select sysout file by number and name (e.g. FILE SO 4).
LINE 2	Split all lines too long for display into 2 lines. Return to normal display with unqualified LINE command.
NEXT	Display next sysout file.
PREV	Display previous sysout file.

Square brackets [] around the command keyword FILE denote that the keyword is optional.

The following sysout file names are available for the FILE commands:

File Name	Description
CC	Summary of job steps and condition codes.
JL	JCL of selected job.
SI	SYSIN data.
SM	System messages.
SO	Sysout data.

# **VSE/ESA Sysout Special Commands**

In addition to the standard Editor browse commands, the following special commands are available to display selected sysout files:

Command	Description
[FILE] name	Display sysout file with name <b>name</b> (e.g. FILE LIST).
NEXT	Display next sysout file.
PREV	Display previous sysout file.

Square brackets [] around the command keyword FILE denote that the keyword is optional.

The following sysout file names are available for the FILE commands:

File Name	Description
CC	Summary of job steps and condition codes.
LST	List queue.
PUN	Punch queue.
RDR	Reader queue.
XMT	Transmit queue.

# Resubmitting an Active Job

After a job has terminated, you can modify and resubmit it while it is still in the active data base. This function is useful after a job has failed.

For example, if a JCL error has occurred, you can modify the active JCL (see the subsection Editing Active JCL) and resubmit the job. The resubmitted job uses the old input conditions for submission, but can set different output conditions, depending on end-of-job analysis.

Any output conditions set by the job's first run can be reset by the second run if this feature is defined in the job's original end-of-job handling.

#### -

#### To resubmit an active job

- 1. Type **R** in the line command field of the selected job on the Active Jobs screen.
- 2. Press Enter.
- 3. A window opens in which you can confirm the re-submission by entering Y (yes).
- 4. Press Enter to confirm the re-submission.
- 5. The window closes and the re-submission time with the message Job is resubmitted appears in the message field of the Active Jobs screen.

# **Resubmitting Sub-networks**

The line command  $\mathbf{R}$  may also be applied to jobs of the NET type (sub-networks). However, this is only allowed, if the sub-network has not started yet.

# No Re-loading after Editing

In case of a **resubmission of the active job** (see Resubmitting an Active Job above), the pre-generated JCL is not reloaded, if the active JCL of the job has been edited in the meantime.

# **Regeneration or Generation of Active JCL**

The JCL for operating system jobs is generated (copied to the active data base) when Entire Operations activates a job network. Entire Operations allows you to regenerate the JCL while the job is in the active data base. This is useful when you wish to refresh the variables in dynamically generated JCL in MAC-type jobs or when you wish to (re-)submit active jobs with their original JCL after editing their JCL for a specific job run.

Even if pregenerated JCL exists, this command regenerates the active JCL from the master JCL. Symbol values are taken in their current status from the active symbol table. If necessary, the active symbol table should be checked beforehand.

#### ▶

#### To regenerate JCL

- 1. Type G in the line command field of the selected job on the Active Jobs screen.
- 2. Press Enter.
- 3. A window opens in which you can confirm regeneration by entering  $\mathbf{Y}$  (yes).
- 4. Press Enter to confirm the regeneration and close the window.
- 5. The message JCL regenerated for job appears in the message field of the selected job on the Active Jobs screen.

# Resubmitting a Job after Re-generation of JCL

After re-generation of the JCL, the active job is **not** automatically restarted.

To resubmit the active job after a re-generation of the JCL, the line command  $\mathbf{R}$  (Resubmit active job) must be entered (see Resubmitting an Active Job).

### Symbol Prompting on Regeneration of JCL

If symbol entry is defined for at least one symbol of the symbol table of the job, the symbol is prompted now. If symbol entry is cancelled, the JCL is not regenerated.

See also the subsection Symbol Prompting in Section Symbols.

### Re-generation of JCL for Sub-networks

The application of the line command **G** on a job of the NET type causes the (re-) activation of the sub-network to occur. However, it **does not** have the automatic start of the sub-network as a consequence. The sub-network will receive a **new run number** because of this action.

To start the sub-network after re-generation of the JCL, the line command  $\mathbf{R}$  (Resubmit active job) must be entered (see Resubmitting Sub-networks).

# **Displaying Online Documentation for Active Jobs**

You can display the text description of a job by typing **P** in the line command field of the selected job on the Active Jobs screen.

This description, if it exists, was written using the Entire Operations Editor during the original job definition. The description is displayed in Editor format and you can use Editor commands and PF keys to browse the text. No modification is possible. All text descriptions can only be modified on the master data base by selecting the Job Maintenance option of the Main Menu.

# **Displaying Prerequisites for an Active Job**

The message field on the Active Jobs screen shows only one pending prerequisite for which the job is waiting. For a full list of pending prerequisites to job submission (conditions, resources, scheduled times etc.), type  $\mathbf{W}$  in the line command field of the selected job and press Enter.

A window opens with a list of events for which the active job is waiting:

```
*** Entire Operations 3.2.1 *** 14:44:20

XAMPLE Active Jobs Network E60-FLOW
29.02.00
                   Active Jobs
Owner EXAMPLE
                                       Run from 4786_ to 4786_
Selection A____
- +-----
   Job JOB-02 Run 4786 29.02.00 14:44 Network E60-FLOW
   is waiting for the following Prerequisites:
   _ Job is in passive wait since 29.02 14:43
   _ E60-J015-O - 4786 - RUN not found
   _ E60-J019-O - 4786 - RUN not found
 !
 !
 !
 !
 !
 !
 ! R Reset Condition S Set Condition W Where Used
 ! C Force Prerequisite Check
     -----PF3-----PF3-----
                     Up Down
E = 1
```

The listed message means that the current run of the job (run number 4786) is waiting for the following:

- the setting of the input condition E60-J015-0 from the same run. See Section Messages and Codes for a full list of possible messages and their meaning.
- the setting of the input condition E60-J019-0 from the same run. See Section Messages and Codes for a full list of possible messages and their meaning.

The text 'Job is in passive wait since 29.02 14:43' shows that the job has been in a passive wait for input conditions.

In this case, the job is automatically returned to the active wait by setting one of the input conditions, i.e., the monitor will execute a prerequisite check.

Before this message, you can **force** an active prerequisite check using the line command **C** (see Line Commands: Display Prerequisites for an Active Job)

For a complete list of possible news and their meaning, see Section Messages and Codes.

# **Line Commands: Display Prerequisites for an Active Job**

Command	Description
С	Only before the message 'Job is in passive wait since': Force an active prerequisite check.
R	If you are waiting for a Condition: reset condition to FALSE.
S	If you are waiting for a Condition: set condition to TRUE.
W	If you are waiting for a Condition: display use of the active condition. For further information, see Display Use of Active Conditions.  If you are waiting for a Resource: display use of the resource.  For further information, see Display Use of Resources.

If the prerequisite is an input condition, you can set or reset the condition manually by typing S or R in the line command input field of the selected condition.

- Use the line command **S** to set the condition to TRUE;
- Use the line command **R** to reset the condition to FALSE.

In either case, a window opens in which you can confirm the manual (re-)setting by entering the condition name. Type in the condition name and press Enter to confirm the operation and close the window.

# **Display Use of an Input Condition**

#### To invoke this function

• Enter the line command **W** (see Line Commands: Display Prerequisites for an Active Job) for an input condition in Displaying Prerequisites for an Active Job.

```
*** Entire Operations 3.2.1 *** 14:51:41
E Input Conditions Maintenance Job JOB-012
01.02.00
                                                                   14:51:41
Owner EXAMPLE
                                                 Lauf 4745 Datum 01.02.00
Network E60-FLOW
! Owner EXAMPLE
                                        Condition E60-JOB1-0
! Network E60-FLOW
                                       Ref.type RUN
! Output Condition of
                                        Input Condition for
! Owner Network Job Run ! Owner Network Job Run ! ! Owner Network Job Run ! ! E60-FLOW JOB-012 4745 ! ! E60-FLOW JOB-019 4745 !
!
                                     !
                                      !
     --PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10-----
                                    Up Down
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF8---PF9---PF10--PF11--PF12---
     Help Add End ACond Save Up Down
```

The left column of the window displays the jobs which can generate the condition.

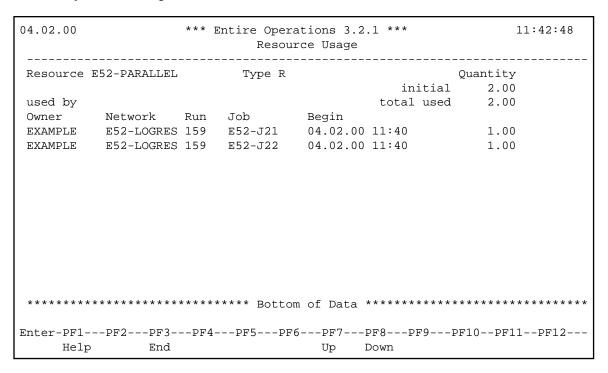
The right column of the window displays the jobs which use this condition as an input condition.

# **Display Use of Resources**

### To invoke this function

• Enter the line command W (see Line Commands: Display Prerequisites for an Active Job) for a resource in Displaying Prerequisites for an Active Job.

The window displays a list of active jobs which are currently using partial quantities of the resource, for which you are waiting for.



# **Editing Active JCL**

For the current job run, you can edit the active JCL of an active job:

- 1. Type **E** in the line command input field of the selected job on the Active Jobs screen.
- 2. Press Enter.

The selected JCL is displayed in Editor format and you can edit it using Editor commands and PF keys, even if the JCL was written with a different editor.

#### Note:

Any changes to JCL made from the Active Jobs screen affect the current job run only.

If you modify active JCL before the job is submitted, Entire Operations submits the job automatically according to its defined prerequisites.

If you modified the JCL after the job terminated and want to resubmit the job with the new JCL, issue the  $\bf R$  line command for the job on the Active Jobs screen (see the subsection Resubmitting an Active Job).

Editing active JCL is useful for correcting JCL errors after job failure etc.

Editing active JCL only refers to one run. If you want to edit the JCL for all runs, you must edit the master JCL.

# **Maintaining Active Conditions**

Logical conditions are defined on the master data base when linking jobs within a job network. When a job network is activated, Entire Operations sets (activates) conditions automatically according to the occurrence of System events. Alternatively, you can set conditions manually. You can display and maintain active conditions.

### To invoke the Active Condition Maintenance facility

• Press PF4 (ACond) from the Active Jobs screen.

The Active Conditions screen appears:

01.02 Owne	2.00 er SN	***	Entire Operati Active Con				11:21:02
Cmd	Owner EXAMPLE*			Date		Run	Status
				28.01.00		50	free
	EXAMPLE	E10-PAR-01	E10-J02-OK	28.01.00	14:38	50	in use
_	EXAMPLE	E10-PAR-01	E10-J03A-OK	28.01.00	14:44	50	free
_	EXAMPLE	E10-PAR-01	E10-J03C-OK	28.01.00	14:41	50	free
_	EXAMPLE	E40-REC-01	E40-J01-OK	10.03.99	16:28	1439	free
_	EXAMPLE	E40-REC-01	E40-J01-OK	10.03.99	16:28	1440	free
_	EXAMPLE	E40-REC-01	E40-J01-OK	10.03.99	16:28	1441	free
_	EXAMPLE	E60-FLOW	E60-JOB1-O	10.01.00	16:07	1968	free
_	EXAMPLE	E60-FLOW	E60-JOB1-O	28.01.00	14:31	2022	free
_	EXAMPLE	E60-FLOW	E60-JOB1-0	28.01.00	14:35	2023	free
_	EXAMPLE	E60-FLOW	E60-JOB1-0	28.01.00	14:04	4743	free
_	EXAMPLE	E60-FLOW	E60-J013-O	28.01.00	14:44	2022	in use
_	EXAMPLE	E60-FLOW	E60-J013-O	12.07.99	14:46	2023	free
***	*****	*****	***** m o	r e *******	*****	*****	*****
D De	elete M Mo	odify W W	nere Used				
Comn	nand =>						
Enter	-PF1PF2	PF3PF	4PF5PF6	-PF7PF8PF	9PF	10PF	L1PF12
	Help Add	End	Save	Up Down			Menu

This screen displays a list of all active conditions belonging to your owner.

You can modify, add or delete active conditions.

# **Column Headings: Active Conditions**

The following table explains the column headings for the data listed on the Active Conditions screen:

Column	Description							
Cmd	One-character line command input field. Po	ossible line commands are:						
	D	Delete condition. See Deleting Active Conditions.						
	M	Modify condition. See Modifying Active Conditions.						
	W	Use the active condition. See Display Use of Active Conditions.						
Owner	Owner name for the condition. The field directly beneath the column heading shows the prefix used to obtain the current ID. Use an asterisk * as a wildcard to enter selection criteria for owner.							
Network	Network name. The field directly beneath the column heading shows the prefix used to obtain the current ID. Use an asterisk * as a wildcard to enter selection criteria for network.							
Condition Name	Name of condition as defined on the master data base. The first line shows the prefix used to obtain the present list. Use an asterisk * as a wildcard to enter selection criteria for condition. A condition that can be used <b>across networks</b> is called a <b>global condition</b> . If you select a global condition (prefix +), it is assigned to the owner SYSDBA and the network SYSDBA:  • If you are adding a condition, Owner and Network names are changed to SYSDBA.  • If you are modifying a condition, the condition is expected under owner/network							
Date / Time		was set. Date and Time serve as search criteria pecified. You can enter a starting date and time						
Run	Run number of job which set this condition							
Status	Status of condition. Possible values:							
	0	(free) Can be used by any job.						
	1	(in use) Can be used by jobs which do not require exclusive usage.						
	2	(exclusive) Currently not usable by other jobs.						

You can scroll the list of active conditions using PF7 (Up) and PF8 (Down) and you can use the available line commands and PF keys to maintain active conditions as described on the following pages.

# **Adding Active Conditions**

You can add active conditions to change the job flow by defining them for jobs before submission.

To add an active condition

1. Press PF2 (Add) from the Active Conditions screen.

The Condition Addition window opens:

11.02.00 Owner SN	-											
Cmd Owner		Status										
_ SN	DEM +	+ ee										
_ SN	DEM !	! ee										
_ SN	DEM ! Condition Addition	! ee										
_ SN	DEM !	! ee										
_ SN	DEM ! Owner ==> SN	! ee										
_ SN	DEM ! Network ==>	! ee										
_ SN	S-M ! Condition ==>	! ee										
_ SN	S-M ! Date / Time ==> 00:00:00	! ee										
_ SN	S-M ! Run Number ==>	! ee										
_	!	!										
_	! Status ==> _	1										
_	!	!										
_	! Enter-PF1PF2PF3PF5	!										
	! Help Add End Save	!										
D Delete M 1	Modif +	+										
Command =>												
Enter-PF1PF	2PF3PF4PF5PF6PF7PF8PF9PF3	10PF11PF12										
Help Ado	d End Save Up Down Lei	ft Right Menu										

The input fields have the same meaning as the corresponding columns on the Active Conditions screen (see Column Headings: Active Conditions.)

- 2. Enter values for the input fields.
- 3. Press PF5 (Save) to add the active condition.
- 4. Press PF3 (End) to close the Condition Addition window and return to the Active Conditions screen.

# **Modifying Active Conditions**

You can modify active conditions to change the use made of them by future runs of jobs for which they are defined.

### To modify an existing condition

- 1. Type **M** in the line command field of the selected condition on the Active Conditions screen.
- 2. Press Enter.

The Condition Modification window opens.

The input fields have the same meaning as the corresponding columns on the Active Conditions screen (see Column Headings: Active Conditions.

- 3. Change the values in the input fields.
- 4. Press PF5 (Save) to save modifications to the active condition.
- 5. Press PF3 (End) to close the Condition Modification window and return to the Active Conditions screen.

# **Deleting Active Conditions**

### To delete an existing active condition

- 1. Type **D** in the line command field of the selected active condition on the Active Conditions screen.
- 2. Press Enter.
- 3. A window opens in which you can confirm deletion by entering Y.
- 4. Press Enter to delete the condition and return to the Active Conditions screen.

# **Display Use of Active Conditions**

This function may be invoked via

- the list of active conditions, using the line command **W**. For further information see Line Commands: Display Prerequisites for an Active Job).
- the list of prerequisites, for which an active job is waiting, using the line command **W**. For further information see Line Commands: Display Prerequisites for an Active Job).

This functions displays the job, which is using the active condition, or the job, which last used the condition.

If several jobs use the condition simultaneously, only one job will be displayed. If the field **End** is blank, the condition is currently being used. Otherwise, it is not in use.

01.02 Owne	2.00 er SN	1		*** Entire Op Activ	erations 3. e Conditior		12:53:	10
Cmd	•							 +
	EXA EXA	•		Acti	ve Conditio	n Haade		!
_	EXA			ACCI	ve condition	on obage		!
_	EXA	!	Owner	EXAMPLE	used by	owner	EXAMPLE	!
_	EXA	!	Network	E10-PAR-01		Network	E10-PAR-01	!
_	EXA	!	Condition	E10-J02-OK		Run	50	!
_	EXA	!	Run	50		Job	E10-J03C	!
_	EXA	!	Status	1 in use		Begin	28.01.00 14:38:46	!
_	EXA	!				End		!
_	EXA	-						!
_	EXA	!	PF1-	PF3				!
_	EXA	!	Help	End				!
_	EXA	+-						+
_	EXAM	ľPL	E E60-FL	OW E60-J013-	0	28.01.00	14:46 2023 free	
***	****	* * *	*****	******	more **	******	******	* * * :
D De	elete	ž	M Modify	W Where Used				
Comn	nand	=>						
nter	-PF1		-PF2PF3-	PF4PF5	PF6PF7	PF8PF	9PF10PF11PF12	2
	Hel	р	Add End	Save	Up	Down	Menu	u

# **Calendar Maintenance**

This section covers the following topics:

- Calendar Maintenance Overview
- Calendar Maintenance Facility
- Adding a Calendar
- Copying a Calendar
- Modifying a Calendar
- Deleting a Calendar
- Displaying a Calendar
- Listing Networks Using a Calendar by Way of Their Schedule

### **Calendar Maintenance Overview**

User-defined calendars are the basis of schedule tables for jobs and job networks. Entire Operations calendars include **workdays** and **holidays** (non-workdays).

Entire Operations does not activate any networks on a day defined as a holiday.

#### **How Calendars Work**

For example, a job network is scheduled to run on every first day of a month and the schedule table is based on a calendar in which Saturdays and Sundays are defined as non-workdays:

If the first day of a month is a Saturday or Sunday, Entire Operations does not start the network on these days, but either delays activation until the next workday following the holidays or brings activation forward to the last workday previous to the holidays, depending on the schedule definition.

#### **Calendar Types**

There are two types of calendars in Entire Operations:

- System-wide calendars
  - System calendars can be modified by authorized users only.
- Owner-specific calendars

When you define a calendar, it is automatically associated with your owner. You can modify only those calendars that belong to your owner.

You can specify a calendar belonging to your owner for a schedule table, but you can also select a system calendar.

#### **Calendar Names**

A calendar can be valid for several years, so you are not forced to change the name of the calendar at the end of the year. Just define the calendar for the next year. For this reason, you should use calendar names independent of the year.

# **Calendar Maintenance Facility**

### To invoke the Calendar Maintenance facility

• Select the Calendar Maintenance option from the Main Menu.

The Calendar Maintenance screen appears with a list of calendars already defined:

	Cmd	Owner	Calendar *	Year	
	_	EXAMPLE			
	_	EXAMPLE	_		
	_	EXAMPLE			
	_	EXAMPLE	_		
	_	EXAMPLE	INFOLAB	1999	
	_	EXAMPLE	INFOLAB	2000	
	_	SYSDBA	P-126797	1998	
	_	SYSDBA	P-126797	1999	
	_	SYSDBA	R-134047	1997	
	_	SYSDBA	R-134047	1998	
******	*****	****** r	nore *****	*****	*****
C Copy D Delete I	List	M Modify V	Where used		
		-			

The list of calendars contains system-wide calendars and calendars belonging to your owner. Calendars belonging to other owners do not appear in this list.

A Calendar is identified uniquely by its owner name and year.

#### **Column Headings: Calendar Maintenance**

The following table explains the column headings for the data listed on the Calendar Maintenance screen:

Column	Description
Cmd	One-character line command input field. For possible values, see Line Commands: Calendar Maintenance below.
Calendar	User-defined name of calendar. Use an asterisk * as a wildcard to enter selection criteria in the field preceded by an asterisk * directly below this column heading. For example, enter SYS* and press Enter to list only those calendars whose names begin with SYS. You can combine prefixes with years, for example: SYS* 1989.
Year	Year of the calendar.
Owner	Owner of calendar (SYSDBA or your owner).

#### **Line Commands: Calendar Maintenance**

Use the following line commands to perform the described functions on any calendar listed on the Calendar Maintenance screen:

Cmd	Description
С	Copy the selected calendar when defining a new one.
D	Delete the selected calendar. (If not specified for any schedule.)
L	Display the first six months of the selected calendar. Holidays appear as dots (.) or are <b>not</b> highlighted. Press PF8 (Down) to display the second half-year. You cannot modify the calendar with this line command.
M	Modify selected calendar. Only <b>owner-specific</b> calendars can be modified.
W	List networks for which this calendar is specified.

#### **PF Keys: Calendar Maintenance**

Key	Name	Function
PF2	Add	Add a calendar.

You can perform several functions on Entire Operations calendars using line commands and PF keys.

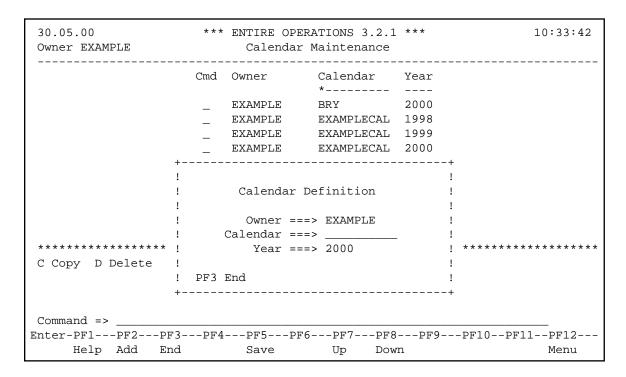
The following subsections give a detailed description of the available functions.

# Adding a Calendar

#### To add a calendar definition

1. Press PF2 (Add) from the Calendar Maintenance screen.

The Calendar Definition window opens:



In this window you can define the new calendar by name and year. It contains the current Owner name and current Year as default values.

A Calendar is identified uniquely by its owner name and year.

#### Fields: Calendar Definition window

Meaning of the input fields:

Field	Description
Owner	Name of owner for whom the calendar is to be defined.
Calendar	Calendar name.
Year	Calendar year.

- 2. Type the required values in the input fields.
- 3. Press Enter.

The Calendar Definition screen appears:

30.05.00 Owner EXAMPLE	,						_				3.2.1 * Year 19						10:36:05
OWNEL EXAMPLE	ٺ				Ca	Tendar	ы	(12			rear 19	90					
		Ja	anua	ary				Fe	ebri	ıary	<i>y</i>		]	Marc.	h		
Monday	1			_						-	26			4 11	18	25	
_								6	13	20	27			5 12	19	26	
Wednesday									14	21	28			5 13	20	27	
Thursday	4	11	18	25			1	8	15	22	29			7 14	21	28	
							2	9	16	23			L	3 15	22	29	
Saturday	6	13	20	27			3	10	17	24		:	2	9 16	23	30	
Sunday	7	14	21	28			4	11	18	25		:	3 1	17	24	31	
		Ar	pril	L				Ma	ау					June			
Monday	1	8	15	22	29			6	13	20	27			3 10	17	24	
Tuesday	2	9	16	23	30			7	14	21	28			1 11	18	25	
Wednesday	3	10	17	24			1	8	15	22	29			5 12	19	26	
Thursday	4	11	18	25			2	9	16	23	30			5 13	20	27	
Friday	5	12	19	26			3	10	17	24	31			7 14	21	28	
Saturday	6	13	20	27			4	11	18	25			L	3 15	22	29	
Sunday	7	14	21	28			5	12	19	26		:	2	9 16	23	30	
Enter-PF1PF	₹2-	I	PF3-	I	PF4-	PF5-	I	PF6-	]	PF7-	PF8	-PF	9	-PF1	0 – – :	PF1	1PF12
Help		I	End	V	√kdy	-			Ţ	Jp	Down						

This screen displays the first six months of the specified calendar year.

#### Note:

The format of the calendar display depends on the value of the Calendar Display Mode parameter in the Entire Operations Default settings and may therefore differ slightly from the format illustrated above.

#### **Calendar Display-Modes**

- For terminals which support highlighting or colors:
  - O Holidays appear **not** highlighted.
  - O Workdays appear highlighted.
- If neither color nor highlighting are available:
  - O Holidays appear as dots (.).
  - O Workdays appear as normal calendar dates.

### **Defining Workdays and Holidays**

Defining a new calendar consists of defining workdays and holidays (non-workdays). This is done in two steps:

- 1. The first step is to define the **weekly holidays**.

  These are the non-workdays in every week, such as weekends.
- 2. The second step is to define **special holidays** or personal vacations.

These steps are explained in the following subsections.

### **Step 1 Defining Weekly Holidays**

### To define weekly holidays (non-workdays)

1. Press PF4 (Wkdy) from the Calendar Definition screen.

A window opens with a list of weekdays:

	*** Entire Operations 3.2.1 *** PLE Calendar BRY2 Year 1996	10:36:05
	+	+
	January F !	!
Monday	1 8 15 22 29 5 ! Calendar BRY2	! 25
Tuesday	2 9 16 23 30 6 ! Year 1996	! 26
Wednesday	3 10 17 24 31 7 !	! 27
Thursday	4 11 18 25 1 8 ! Please mark weekly	! 28
Friday	5 12 19 26 2 9 ! holidays:	! 29
Saturday	6 13 20 27 3 10 !	! 30
Sunday	7 14 21 28 4 11 ! _ Monday	! 31
	! _ Tuesday	!
	April M ! _ Wednesday	!
Monday	1 8 15 22 29 6 ! _ Thursday	! 24
Tuesday	2 9 16 23 30 7 ! _ Friday	
Wednesday	3 10 17 24	! 26
Thursday	4 11 18 25 2 9 ! _ Sunday	! 27
Friday	5 12 19 26 3 10 !	! 28
Saturday	6 13 20 27 4 11 ! S Set R Reset	! 29
Sunday	7 14 21 28 5 12 ! PF3 End	! 30
	+	+
Enter-PF1	-PF2PF3PF4PF5PF6PF7PF8PF9PF1	10PF11PF12
Help	End Wkdy Up Down	

2. Mark the weekly holidays with an S. (To reset a marked weekly holiday to a workday, mark it with R.) Press Enter.

The window closes and the selected holidays appear as dots (.) or are **not** highlighted.

The following figure shows the result of marking Saturday and Sunday as weekly holidays:

30.05.00 Owner EXAMPLE	E						_				3.2.1 *** Year 1996						10:38:02
		Ja	anua	ary				Fe	ebrı	ıary	7		Ma	arc	n		
Monday	1	8	15	22	29			5	12	19	26		4	11	18	25	
Tuesday	2	9	16	23	30			6	13	20	27		5	12	19	26	
Wednesday	3	10	17	24	31			7	14	21	28		6	13	20	27	
Thursday	4	11	18	25			1	8	15	22	29		7	14	21	28	
Friday	5	12	19	26			2	9	16	23		1	8	15	22	29	
Saturday																	
Sunday	•		•	•			•	•	•	•		•	•	•		•	
April May June																	
Monday	1		15		29			6	13	20	27		3	10	17	24	
Tuesday	2	9	16	23	30			7	14	21	28		4	11	18	25	
Wednesday	3	10	17	24			1	8	15	22	29		5	12	19	26	
Thursday	4	11	18	25			2	9	16	23	30		6	13	20	27	
Friday	5	12	19	26			3	10	17	24	31		7	14	21	28	
Saturday																	
Sunday	•	•	•	•				•	•	•		•	•	•	•	•	
Enter-PF1P	F2-	1	PF3-	I	>F4-	PF5	I	PF6-	I	₽F7-	PF8I	PF9-		PF1	01	PF1	1PF12
Help			End		۷kd					Jp	Down						

#### **Step 2 Defining Special Holidays or Personal Vacations**

The second step is to mark special holidays or personal vacations:

1. Simply type over the date(s) with any character and press Enter. Multiple selection in one input operation is possible.

The marked holidays appear as dots (.) or are **not** highlighted.

- 2. To display the second six months of the year, press PF8 (Down)
- 3. Mark the date(s) as described above.

Selection and deselection of specific holidays is done in 'toggle' fashion: overtyping a workday makes it a holiday, and overtyping a holiday with any character makes it a workday.

4. Press PF3 (End) to return to the Calendar Maintenance screen.

The newly defined calendar appears in the list.

#### Note:

A network schedule can override workdays marked on a calendar, because a network runs on a day specified in a calendar, only if this day is also specified in the schedule.

# Copying a Calendar

When defining a new calendar, use an existing calendar as a model for the new definition.

To copy a calendar

1. Type C in the line command input field of the calendar to be copied. Press Enter.

A window opens with the name and year of the existing calendar.

2. Enter a new name in the input field labelled **to calendar** (you cannot modify the year). Press Enter.

The Copy window closes and the new calendar appears in the list on the Calendar Maintenance screen.

3. You can use the **M** line command to modify the new calendar.

# Modifying a Calendar

Modifying a calendar consists of specifying or deleting holidays.

### 📂 To modify a calendar

1. Type **M** in the line command input field of the selected calendar on the Calendar Maintenance screen. Press Enter.

The Calendar Definition screen appears with current holidays marked as dots (.) or **not** highlighted.

You can now modify the calendar in the same way as described in the subsection Adding a Calendar.

- 2. Press PF4 (Wkdy) and use the **S** command to select new weekly holidays.
- 3. Use the **R** command to reset existing weekly holidays to workdays.
- 4. Press Enter to close the weekly holiday window and mark the special holidays as described in Step 2: Defining Special Holidays or Personal Vacations.
- 5. Press PF3 (End) to return to the Calendar Maintenance screen.

## **Deleting a Calendar**

#### To delete a calendar definition

1. Type **D** in the line command input field of the selected calendar on the Calendar Maintenance screen. Press Enter.

A window opens in which you can confirm deletion by entering the calendar name.

- 2. Enter the calendar name.
- 3. Press Enter to perform the deletion.

You cannot delete a calendar if it is specified for at least one schedule. If you wish to delete a calendar which is still basis of a defined schedule, Entire Operations notifies you with a message, stating the network for which the calendar is specified. In this case, you cannot delete the calendar until you have either:

- Deleted the network for which the calendar is specified, or:
- Specified another calendar for the relevant network schedule table.

You can delete only the calendars for which you have a permission to delete.

## **Displaying a Calendar**

This function displays the first six months of the calendar year. You cannot modify the calendar with this line command.

#### To display a calendar definition

1. Type **L** in the line command input field for the selected calendar on the Calendar Maintenance screen. Press Enter.

The first six months of the selected calendar appear in the same format as the Calendar Definition screen (see figure in Step 1).

Defined holidays are not modifiable and appear as dots (.) or are **not** highlighted.

2. Press PF8 (Down) to display the second half-year.

Scroll the years by using PF7 (Up) to display the calendar with the same name of the previous year, and PF8 (Down) to display the calendar with the same name of the following year.

- 3. If no more definitions are available at either end, Entire Operations prompts you to define a calendar with the same name of the appropriate year in the calendar definition window.
- 4. You can define the calendar in the normal way or press PF3 (End) to abort the function and return to the list of calendars.

# Listing Networks Using a Calendar by Way of Their Schedule

## To list job networks for which a calendar is specified

1. Type **W** in the line command input field of the selected calendar on the Calendar Maintenance screen. Press Enter.

A window opens which lists the calendar identifiers (name, owner) and associated networks:

```
30.05.00
                  *** ENTIRE OPERATIONS 3.2.1 ***
                                                      10:44:09
                     Calendar Mai +----+
Owner SN
 -----!
                             Ca!
                  Cmd Owner
                                   Calendar Usage
                               *-!
                              BR ! Owner
                      SN
                                          SN
                              BR ! Calendar DEMOCAL !
                     SN
                     SN
                              DE !
                            DE ! is used
DE ! Owner
DE ! SN
                     SN
                              DE !
                                   is used by
                                   Owner Network!
SN DEMO-NET!
                     SN
                                         DEMO ...
E-0016
VRSG-2
DEMO
                     SN
                     SN
                              DE! SN
                              DE ! SN VRSG-2
DE ! SN BRY-DEMO
                     SN
                     SN
                                                    !
                     SN
                              SN!
                                                     !
******* m o r !
C Copy D Delete L List M Modify W Whe!
                                                     !
                                 ! **** Bottom ****
                                ! PF3 End PF8 Down
Command => _
                                _ +----+ _
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
   Help Add End Save Up Down
```

2. Press PF3 (End) to close the window and return to the Calendar Maintenance screen.

# **Log Information**

Entire Operations logs all important system events. Additionally, more detailed user-defined logs are available at the job level. These must be specified for the job in the job definition.

#### To display all logged information

1. Select the Log Information option from the Main Menu.

The Log Display Selection screen appears:

```
15.02.00
                     *** Entire Operations 3.2.1 ***
                                                                 13:03:08
                          Log Display Selection
   Log Date ==> 15.02.00 Thru ==> 15.02.00 Max. Lines ==>
   Log Time ==> 00:00:00 Thru ==> 13:03:08
      Owner ==> _____
                                          * Select Blank All
                                          * Select
    Network ==> _____
                                                    Blank All
        Run ==> 1____ Thru ==> 99999
                                          * Select
        Job ==> _____
                                                    Blank All
                                          * Select Blank all
       User ==> ____
Command => _
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help
```

You can specify the date range, owner, network, run number range, job name and user ID for which to display log information.

#### Field Descriptions: Log Display Selection

Meaning of the input fields:

Field	Description
Log Date Thru	Enter date range of log. Default is current date.
Log Time Thru	Enter time range of log. Default is from 00:00:00 to 23:59:59 in the format HH:MM:SS.
Maximum Lines	The maximum number of lines in the log display. <b>Blank</b> (value 0) means: no limit.  A default value can be defined for each user (see the Entire Operations Administration Documentation).
Owner	Enter name of the owner whose log is to be displayed. Enter asterisk * and press Enter to select owner from a list. Leave blank to select log of all owners.
Network	Enter name of the network whose log is to be displayed. Enter asterisk * and press Enter to select network from a list. Leave blank to select log of all networks.
Run Thru	Enter run number range to be displayed. Can be used only if owner and network have been selected. Default: 1-9999 (all).
Job	Enter name of the job whose log is to be displayed. Enter asterisk * and press Enter to select job from a list. Leave blank to select log of all jobs.
User	Enter the user ID, for which the log is to be displayed. To display the log for the Monitor, enter the name of the Monitor task. Enter an asterisk * and press Enter to define a group of users. A selection window does not open. To select the log of all users, either leave this field empty or enter only an asterisk *.

#### **Note:**

You can use **only one** of the following methods to display the log. Enter selection criteria: **either** in the Owner/Network/Run/Job fields **or** in the User field.

2. Enter the selection criteria for the desired log information. Press Enter.

The System Log screen appears:

	ERATIONS Sy	stem Log					olumns 014 088	
====>						SCRO	LL====> PAGE	
M User ID	Owner	Network	Job	Run	Date	Time	Message	
*****	******	***** top	of data ****	*****	*****	*****	*****	
TASK 1	EXAMPLE	E60-FLOW	JOB-02	992	11.07	13:23	E60-J019-O -	
BRY	SN				11.07	13:23	Logon User B	
BRY	SN				11.07	13:24	Logon User B	
BRY	SN				11.07	13:50	Logon User B	
BRY	SN				11.07	13:50	Logon User B	
BRY	SN				11.07	13:54	Logon User B	
BRY	SN				11.07	13:54	Logon User B	
BRY	SN	DEMO2			11.07	13:58	Calendar DEM	
TASK 1	SN	SN-E01			11.07	13:58	Curr.Sched.	
TASK 1	EXAMPLE	E40-REC-01	E40-J03	825	11.07	14:00	Latest Start	
TASK 1	EXAMPLE	E40-REC-01	E40-J99999	825	11.07	14:00	Latest Start	
BRY	SN				11.07	14:02	Logon User B	
BRY	SN				11.07	14:02	Logon User B	
TASK 1	SN	SN-2	HUGO	767	11.07	14:24	Latest Start	
TASK 1	SN	SN-2	HUGO-VSE	767	11.07	14:24	Latest Start	
TASK 1	SN	SN-2	HUGO-146	767	11.07	14:24	Latest Start	
*****	************* bottom of data *******************							
Enter-PF1	-PF2PF3-	PF4PF5	PF6PF7	PF8	PF9-	PF10-	-PF11PF12	
Help	End	Refre Rfi	nd Up	Dow	n	Left	Right Curso	

The above screen is an example of a system log using the **display all** option for the current date (blank selection criteria).

#### **Column Headings: System Log**

The following table explains the column headings for the data listed on the System Log screen:

Column	Description
M	Overtype the asterisk * in this field with any character to display more specialized information as defined for the job by the user. For more information see the subsection User-defined Log.
Userid	User ID as defined in host TP environment.
Owner	Owner name in Entire Operations.
Job	Entire Operations job name.
Network	Name of the job network.
Run	Job run number.
Date	Date of log entry.
Time	Time of log entry.
Message	Message text.

## **Browse Commands: System Log**

Use the following Editor commands to browse the Log:

Command	Description
ВОТТОМ	Scroll down to the last Log message at bottom of list.
FIND	Find a string. FIND 'TASK 1', for example, finds the next occurrence of the string TASK 1.
LEFT	Scroll left in the list. LEFT 5, for example, scrolls 5 columns to the left.
RIGHT	Scroll right in the list. RIGHT 5, for example, scrolls 5 columns to the right.
ТОР	Scroll up to the first Log message at the top of the list.

#### **PF Keys: System Log**

Use the following PF keys to browse the Log:

Key	Name	Function
PF4	Refre	Update the screen with the most recent Log messages at bottom of data.
PF5	Rfind	Find the next occurrence of the string last entered with the FIND command.
PF7	Up	Scroll list toward top of data.
PF8	Down	Scroll list toward bottom of data.
PF10	All	List all active jobs in Entire Operations.
PF11	NxtAc	List next scheduled and manual network activations.

#### **User-defined Log**

An asterisk \* in the M column of any job means that a more specialized user-defined log is available according to the specifications made in the original job definition (see the subsection User-defined Log).

## To display the user-defined log

1. Type over the asterisk \* in the **M** column of the selected job on the System Log screen with any character. Press Enter.

The user-defined log appears.

#### **Types of User-defined Log**

Three types of user-defined log are possible:

#### • JCL log

If (in the Job Maintenance facility) you specified JCL logging, the JCL of the job run selected from the System Log screen is displayed in Editor format, browse mode (see User-defined Log);

The JCL log source is dependent upon the operating system, in which the job has run. For a detailed description see the subsection User-defined Log.

#### • Sysout log

If you specified the job sysout to be logged after job termination, the sysout of the job run selected from the System Log screen is displayed in Editor format, browse mode;

#### • Operating system messages

If you specified operating system messages to be logged according to the criteria defined in

the Job Maintenance facility, the messages of the job run selected from the System Log screen are displayed in Editor format, browse mode.

2. Press PF3 (End) to return to the system log.

#### **Output of Log Information**

Log data can be written to the Natural standard output for printing or for transfer to other programs.

The batch utility NOPLP01P serves this purpose. It must be executed in a Natural batch job. The system files of Entire Operations must be correctly assigned.

#### **NATURAL Program Call:**

```
LOGON SYSEOR
NOPLP01P <P-FROM> <P-TO> <P-LANGUAGE>
FIN
```

#### **Parameters:**

Parameter	Format	Use
P-FROM	(A14)	Start date (with time as an option)
		Formats:
		YYYYMMDD
		YYYYMMDDHHIISS
		If time is omitted, the start is at the beginning of the day.
P-TO	(A14)	End date (with time as an option)
		Formats:
		YYYYMMDD
		YYYYMMDDHHIISS
		If time is omitted, the end is at the end of the day.
P-LANGUAGE	(I04)	Language code (optional)
		1 English
		2 German
		If this parameter is omitted, the language setting from the Entire Operations defaults will be used.

#### Example for a Call:

LOGON SYSEOR NOPLP01P 20000224 20000224120000 1 FIN outputs all log data in English from 24/02/2000 00:00:00 to 24/02/2000 12:00:00.

## **Example of an Output:**

	1======= Entire Operations Log - 24.02.00 00:00:00 thru 24.02.00 12:00:00 ====== Page: 6								
Date	Time	User-ID	Owner	Network	Run	Job	Code	Message	
24.02.00	10:22:36	TASK 1	UKSJU	SCHEDDEP			7715	Network SCHEDDEP did not run on 31.01.00	
24.02.00	10:22:36	TASK 1	UKSJU	SCHTEST98			7715	Network SCHTEST98 did not run on 31.01.00	
24.02.00	10:22:36	TASK 1	UKSJU	TESTEXP			2710	Calendar WORKDAYS undefined for 2000	
24.02.00	10:22:36	TASK 1	USW	V-AT-VWLS			2710	Calendar K-USW undefined for 2000	
24.02.00	10:22:36	TASK 1					7065	Schedules of 26 Networks extracted	
24.02.00	10:22:38	TASK 1	EXAMPLE	E01-CONTI	526		7370	Symbol Table EX-ST-COMN activated	
24.02.00	10:22:38	TASK 1	EXAMPLE	E10-PAR-01	151		7370	Symbol Table EX-ST-COMN activated	
24.02.00	10:22:38	TASK 1	EXAMPLE	E60-FLOW	4767		7370	Symbol Table EXAM-ST1 activated	
24.02.00	10:22:39	TASK 1	GFR	BS2000	714		7370	Symbol Table GFR-ST1 activated	

24.02.00	10:22:39	TASK 1	GFR	BS2000	714		7725	Awaiting Symbol Prompting
24.02.00	10:22:39	TASK 1	GFR	BS2000	714		7725	Message Sending: No Recipient defined
24.02.00	10:22:39	TASK 1	GFR	BS2000	714		2060	Symbol Prompt Request sent to SYSDBA
24.02.00	10:22:40	TASK 1	EXAMPLE	E01-CONTI	526	E01-J01	1990	Time Frame Setting
24.02.00	10:22:40	TASK 1	EXAMPLE	E01-CONTI	526	E01-J02	1990	Time Frame Setting
24.02.00	10:22:40	TASK 1	EXAMPLE	E01-CONTI	526	E01-J03	1990	Time Frame Setting
24.02.00	10:22:40	TASK 1	EXAMPLE	E01-CONTI	526	E01-J04	1990	Time Frame Setting
24.02.00	10:22:40	TASK 1	EXAMPLE	E01-CONTI	526	E01-J05	1990	Time Frame Setting
24.02.00	10:22:40	TASK 1	EXAMPLE	E01-CONTI	526	E01-J06	1990	Time Frame Setting
24.02.00	10:22:40	TASK 1	EXAMPLE	E01-CONTI	526		2110	Network activated on 24.02 at 10:22

# **Symbols**

This section covers the following topics:

- Symbol Tables
- Master Symbol Table Maintenance Function
- Symbol Prompting
- Symbol Functions

# **Symbol Tables**

Symbol tables are used for parameter substitution in Dynamic JCL Generation.

Symbol tables consist of a list of variables and their current values that are read into the dynamically generated JCL of MAC-type and JOB-type jobs at job activation time. The symbol table referenced must be specified for the job at definition time or in the active queue for a single job run.

Symbols are searched for in the following order:

- 1. Active symbol table of job;
- 2. Master symbol table of job;
- 3. Active symbol table of the network;
- 4. Master symbol table of the network;
- 5. Symbol table **A** belonging to owner SYSDBA.

Symbol tables are associated with owners. Each owner can have several symbol tables. You can only maintain the symbol tables that belong to your owner.

Symbols can be defined manually within Entire Operations, or they can be generated by any program, which invokes a subprogram delivered with Entire Operations, to set, reset, or modify a symbol. The symbol table entries contain the format, prompting type, prompting text (optional), and the value of a symbol.

## **Global Symbols**

Global symbols are symbols defined for use spanning all jobs and networks. They are kept centrally in symbol table **A** of owner SYSDBA.

## **Predefined Symbols Availability**

There are a number of predefined symbols. You can find a description of these in the subsection Predefined Symbols.

# **Symbol Replacement**

How symbols are replaced is described in the subsection Symbol Tables.

# **Master Symbol Table**

There are **two** ways to display a **master** symbol table:

#### Method 1:

- 1. Select the Symbol Tables option from the Main Menu.
- 2. The Master Symbol Tables window opens.
- 3. Type **L** in the line command input field of the appropriate symbol table.
- 4. Press Enter.
- 5. The selected **master** symbol table appears.

#### Method 2:

- 1. From the Master Job Definition window, press PF7 (Symb).
- 2. The **master** symbol table for the job appears.

# **Active Symbol Table**

During job or job network activation, an **active copy** of each symbol table used is created. To display an **active** symbol table:

- 1. Press PF7 (Symb) from the Active Job Definition window.
- 2. The **active** symbol table for the job appears.

To identify an active symbol table uniquely, both the network name and run number are required.

Active symbols are maintained analogously to master symbols. Therefore, only the maintenance of master symbol tables and symbols is described in the following paragraphs.

Please note that all modifications of active symbols apply to the current run only.

# **Master Symbol Table Maintenance Function**

- To invoke the Master Symbol Table Maintenance function
  - 1. Select the Symbol Tables option from the Main Menu.
  - 2. Press Enter.

The following window opens:

27.08.00 *** Entire Operations 3.2.1 *** Owner EXAMPLE Main Menu					Us	10:27:18 er ID VMU	
		!				+ !	
	Main	!		Master Symbo	ol Tables	!	
		!				!	
1	Netwo	!	Cmd	Owner	Symbol Table	! :	ment (V132)
2	Activ	!		EXAMPLE	*	!	ement (V141)
3	Calen	!	_	EXAMPLE	ADMIN	!	
4	Log I	!	_	EXAMPLE	EX-ST-COMN	!	
5	Symbo	!	_	EXAMPLE	EX-VSE-1	!	
6	Syste	!	_	EXAMPLE	EXAM-ST1	!	
7	Repor	!	_	EXAMPLE	E20-ST	!	
8	Impor	!	_	EXAMPLE	E40-ST	!	
9	Help	!	_	EXAMPLE	E53-ICSYM	!	
		!	_	EXAMPLE	HAMBURG	!	
		!	_	EXAMPLE	LONG-TABLE	!	
		!	_	EXAMPLE	UKSJUTAB1	!	
		!	C Copy D De	lete L List S	Symbols W Where used	!	
		!				!	
					PF5PF7PF8PF12-	! .	
Enter	-PF1	!	Help	Add End S	Save Up Down Menu	!	-PF11PF12
	Help	+-				+	Owner Mail

This window lists master symbol tables already defined to Entire Operations. You see only the symbol tables that belong to your owner. If no master symbol tables have been defined for your owner, the list is empty.

## Column Headings: Master Symbol Tables - window

Meaning of column headings:

Column	Description
Cmd	One-character line command input field. For possible values see Line Commands: Master Symbol Tables - window, below.
Owner	Owner of the symbol table. The selection field of this column denotes the owner for whom symbol tables are displayed in column Table Name. This field is preset with the owner under which you are currently working. You can enter any owner to which your user ID belongs. Enter an asterisk * and press Enter to display a selection list of owners.
Table Name	In the selection field of this column you can enter selection criteria for the symbol tables to be listed for the owner, above. For example, enter DE* and press Enter to list all symbol tables beginning with DE. This field appears at first with an asterisk * and displays all of the owner's symbol tables.

## **Line Commands: Master Symbol Tables - window**

Use the following line commands to perform the described functions on any symbol table listed in the Master Symbol Tables window:

Cmd	Description
С	Copy a master symbol table.
D	Delete a master symbol table.
L	List / Modify symbols in the selected table.
W	List jobs for which table is defined.

#### PF Keys: Master Symbol Tables - window

You can perform the following function from the Master Symbol Tables window using PF2:

Key	Name	Function
PF2	Add	Add a master symbol table.

The following subsections describe the functions you can perform on master symbol tables using available line commands and PF keys.

# **Adding a Master Symbol Table**

## To add a master symbol table

1. Press PF2 (Add) from the Master Symbol Tables window.

The following window opens:

```
10.02.00
                                                       !
| Master Symbol Modification | 2.00 16:13 | 2.00 16:30 | 2.00 16:30 | 2.00 16:30 | 2.00 16:33 | 2.00 16:33 | 2.00 16:33 | 2.00 16:33 | 2.00 16:13 | 2.00 16:13 | 2.00 16:13 | 2.00 17:15 | 2.00 17:15 | 2.00 17:15 | 2.00 17:16 | 2.00 17:16 | 2.00 17:17
                                                   .... ! 2.00 17:17
        Value ===> Short-value_____
1
                                     ! 2.00 17:17
! Be careful with insertions or deletions. ! 2.00 17:17 ! The 2 lines will be concatenated to one symbol value. ! 2.00 17:16
                     Update Mode ===> _ ! 2.00 17:16
! Prompting ===> A
                       ______ ! 2.00 17:16
! Prompt Text ===> _____
                                                       ! 2.00 17:16
                                                        ! 2.00 17:16
                                                        ! 2.00 17:16
Help Add End Save RgChk Mult Copy UsrRt ! F11--PF12---
+-----
```

2. Enter the name of a new master symbol table and define the first symbol for it. Input fields are described under Field Descriptions: Master Symbol Addition.

#### **PF Keys: Master Symbol Addition**

You can perform the following functions from the Master Symbol Addition window using these PF keys:

Key	Name	Function
PF8	RgChk	Numeric value check The value range check is only performed for values of format N. In this case, a special window appears here.
PF9	Mult	Assign multiple values for one symbol. These can be used in subsequent replacements of the same symbol. A special window opens.
PF10	Сору	Copy a complete master symbol table, even from the alternate EOR data file. (Master Symbol Tables only)
PF11	UsrRt	Define and edit a plausibility check user routine for this symbol. (Master Symbol Tables only)

#### Field Descriptions: Master Symbol Addition

Meaning of the input fields:

Field	Description		
Symbol Table	Enter the name of the new master symbol table. It contains the variables for Dynamic JCL Generation and can be maintained manually or modified by programs.		

Cymbol Noma	Enta	r the name of the symbol to be used as vericelle			
Symbol Name	Enter the name of the symbol to be used as variable.  Owner of symbol table				
Owner	Owner of symbol table.				
Network	Current job network (Active Symbol Table only).				
	Enter the format of the variable. Possible values:				
	A Alphanumeric (including special characters)				
Format	D	Date			
Tormat	L	Alphanumeric; conversion to lower case.			
	N	Numeric			
	U	Alphanumeric; conversion to upper case.			
Run	Curr	ent job run ( <b>Active</b> Symbol Table only).			
		r the current value of the variable, i.e. the string or number to be substituted namically generated JCL.			
	Notes:				
Value		If the <b>Value</b> is longer than <b>40</b> characters, continue on the second line. Maximum length is <b>80</b> characters. Be careful with insertions and deletions. The <b>2</b> lines are concatenated to one symbol value. The maximum length for a numerical <b>Value</b> is <b>15</b> . A decimal point can appear at any position. A date must use the format YYYYMMDD.			
		rifies whether the user is to be prompted for this symbol during manual ration of the job network. Possible values:			
Prompting	A	Prompt for symbol at each activation.			
	E	Prompt only if no value is specified in table.			
	N	Never prompt for symbol.			
Modification Mode	М	Write back modified active symbol to the master table as well.  Note: The symbol is also written back, if a respective global setting is available. See Entire Operations Defaults in Section System Administrator Services of the Entire Operations Administration Manual.			
	else	No special action.			
Prompt Text	Optional text to be displayed when symbol prompting is performed, to help the user specify the correct value.				

3. If you wish to add more symbols to the new table, press PF2 (Add) from the Master Symbol Addition window. This saves the first definition and clears the window.

You can now add another symbol. You can add any number of symbols to a master symbol table.

- 4. Press PF5 (Save) to save the new master symbol table.
- 5. Press PF3 (End) to close the window and return to the Master Symbol Tables window. The new master symbol table appears in the list.

You can add any number of master symbol tables for your owner.

#### **Example**

The following example illustrates the use of the symbol FILE-1 in the master symbol table DEMO:

```
10.02.00
                     *** Entire Operations 3.2.1 ***
                                                                 14:17:27
Owner SN
                      Master Symbol Table DEMO
Network
                                                                Run
                                                             - 1
                    Master Symbol Modification
                                                             ! 2.00 14:12
!
!
                                                             ! 2.00 14:12
                                         Owner SN
! Symbol Table ===> DEMO_
                                                             ! 2.00 14:12
! Symbol Table ===> DEMO_____ Owner SN
! Symbol Name ===> FILE-1____ Network
                                                             ! 2.00 14:13
    Format ===> A
                                                             ! 2.00 14:13
!
         Value ===> EOR.DEMO.SRCE___
!
! Be careful with insertions or deletions.
! The 2 lines will be concatenated to one symbol value.
! Prompting ===> E
                            Update Mode ===> _
!
   Prompt Text ===> The Entire Operations Demonstration____
!
                    Source Library_____
!
! Enter-PF1---PF2---PF3----PF5----PF9---PF10---PF11--
   Help Add End Save RgChk Mult Copy UsrRt ! F11--PF12---
```

For each occurrence of the symbol FILE-1 in the JCL of the job for which symbol table DEMO is specified, the value EOR.DEMO.SRCE is substituted. For example, the JCL line:

```
//XYZ DD DSN=@FILE-1,DISP=SHR
```

as defined in the original JCL, becomes:

```
//XYZ DD DSN=EOR.DEMO.SRCE,DISP=SHR
```

at job activation time.

#### Note:

Symbols preceded by the submission escape character in the JCL are replaced by their current values when the job is submitted.

The user can modify the resulting JCL for a single job run using the Active Job Maintenance facility (see the subsection Editing Active JCL in Section Active Job Networks).

When the job network which uses this symbol table is activated manually, the user is prompted for this symbol. The text in the Prompt Text field is displayed during symbol prompting to help the user specify the correct value. The user can leave the specified value or modify it for the network run.

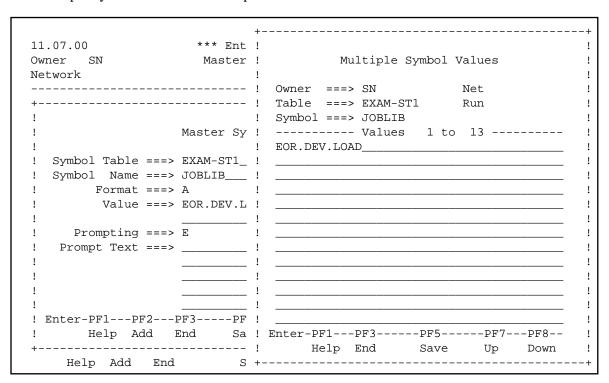
## **Multiple Symbol Values**

For special purposes, you can give a symbol several values which can be used in subsequent substitutions of the same symbol. These values can be used for the multiple parallel activation of a job. The number of parallel jobs is the same as the number of multiple values defined here.

#### To define multiple symbol values

• Press PF9 (Mult) from the Master Symbol Addition window.

The Multiple Symbol Values window opens:



## Field Descriptions: Multiple Symbol Values

Meaning of the input field:

Field	Description
	You can enter up to <b>60</b> values here. These values are used for subsequent substitutions.
	Scroll with PF7 (Up) and PF8 (Down).

For further information on the assignment of multiple symbol values, see the subsection Symbol Replacement with Multiple Symbol Values.

#### **Using Single Occurrences for Symbol Replacement**

You can use the symbol function MV to get single occurrences of multiple symbols for replacement. For further information, see the symbol function MV description.

# **Symbol Plausibility Check User Routine**

A **plausibility check** can be performed on entered symbol values, during symbol modification or prompting.

The user routine must be written as a Natural subprogram and must use the supplied parameter list NOPXPL-A. This parameter list contains the owner, symbol table, symbol name, etc. It can therefore be used for different symbols.

#### **Special Parameters**

The parameters P-RC (return code) and P-RT (return text) are examined by the caller after execution of the user routine. If P-RC is zero, the symbol is accepted as **ok**. Otherwise, the symbol is not accepted.

If the text from P-RT is not blank, it will be displayed to the user with message code EOR1855. If P-RT is not zero and blank, a standard error message is displayed.

#### To define a symbol plausibility check user routine

• Press PF11 (UsrRt) from the Master Symbol Addition / Modification window.

The following window opens:

Owner SN Network			Table EXAM-ST1		Run
!					!02.99 12:32
!	Mast	er Symbol Modi	fication		!11.98 10:33
!					103.00 08:40
! Symbo +				+	!05.98 17:26
! Symbo !	!			1	!02.99 12:32
!!!	Definition of	Symbol Check	User Routine	!	!03.00 08:40
!!!	!			!	!11.98 10:32
!!!	Owner	===> SN		!	!02.99 12:31
! Pr !	Symbol Table	===> EXAM-ST1	L	!	!
! Prom!	Symbol	===> JOBLIB		!	!
!!!				!	!
!!!	Library	<del></del>	-	!	!
!!!	User Routine	===>	-	!	!
!!!				!	!
! Enter-!	PF1PF3				! * * * * * * * * * * *
!!!	Help End	Edit Save			! +PF11PF12

## Field Descriptions: Definition of Symbol Check User Routine

Meaning of the input fields:

Field	Description
Library	Enter name of library in which user routine resides.
User Routine	Enter name of user routine.

## **Using Adabas and Entire System Server**

As in other user routines, Adabas, Entire System Server and Natural system variables can provide a lot of flexibility to symbol checking.

## Special PF Keys: Definition of Symbol Check User Routine

Key	Name	Function
PF4	Edit	Edit or create a user routine. <b>Do not forget to STOW the routine so it can be used</b> .
PF9	Delete	Delete the user routine definition, but not the user routine itself.

# Displaying and Modifying a Master Symbol Table

Modifying a master symbol table consists of adding, modifying or deleting symbols and their current values in an existing symbol table.

## To modify an existing master symbol table

• Type L in the line command input field of the selected symbol table in the Master Symbol Tables window. Press Enter.

The Master Symbol Table screen appears: (You can also display this screen by pressing PF7 (Symb) from the Master Job Definition window).

```
11.07.00
                        *** Entire Operations 3.2.1 ***
                                                                       15:59:08
 Owner SN
                        Master Symbol Table EXAM-ST1
Network
                                                                     Run
C Symbol F P Value

_ CLASS A E G

_ HUGO A E HUGO

_ JOBLIB A E EOR.DEV.LOAD

_ JOBNAME A E SNE6201

_ MSGCLASS A E X

_ STEPLIB A E EOR.DEV.LOAD

_ TEST A E TEST

_ UID A E SN
                                                       modified by
                                                       SN
                                                                05.02.99 12:32
                                                       SN
                                                                20.11.98 10:33
                                                       BRY
                                                                22.04.00 15:58
                                                       SN
                                                                14.05.98 17:26
                                                       SN
                                                                05.02.99 12:32
                                                       SN
                                                                11.03.99 08:40
                                                                20.11.98 10:32
                                                       SN
                                                       SN
                                                                05.02.99 12:31
 C Copy D Delete M Modify
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help Add End
                                                 Down
                              Save Up
                                                             Print
```

This window lists the symbols defined for the table by name, format, prompt value and current symbol value. Information is provided on the right concerning the user and date and time when the symbol was last modified.

You can add, modify and delete a symbol from the table.

#### Column Headings: Master Symbol Table - screen

Meaning of the column headings:

Column	Description					
С	One-character line	command input field. Possible values:				
	C	Copy symbol.				
	D	Delete symbol.				
	M	Modify symbol.				
Symbol Name	Name of the symbol used as variable.					
F	Format of the vari	able. Possible values:				
	A	Alphanumeric (including special characters)				
	D	Date				
	L	Alphanumeric; conversion to lower-case letters				
	N	Numeric				
	U	Alphanumeric; conversion to upper-case letters				
P	<b>Prompting</b> . Is the user prompted for this symbol during manual activation of the job network? Possible values:					
	A	Prompted for symbol at each activation.				
	E	Prompted only if no value is specified in table.				
	N	Never prompted for symbol.				
Value	Current value of the variable, i.e. the string or number substituted in dynamically generated JCL.					
	*** empty ***	Means the field is <b>blank</b> .				
	*** multiple values ***	Means you must use the <b>M</b> line command to display the multiple values.				
modified by	User who last modified the symbol followed by date and time of last modification.					

# Special PF Keys: Master Symbol Table - screen

Key	Name	Function
PF10		Print symbol table with all symbols on the printer assigned to PRINTER1. <b>Exception for BS2000</b> : An additional window opens in which you are asked to enter the printer name. If you wish to print via FORMS, because RSO is not installed, enter the following in the field Print Device: F=formname.

# Adding a Symbol to a Symbol Table

To add a symbol to the table

1. Press PF2 (Add) on the Master Symbol Table screen.

The Master Symbol Addition window opens (see Adding a Master Symbol Table), with the name of the master symbol table already entered in the Symbol Table field. This field is not modifiable.

- 2. Enter the new symbol definition.
- 3. Press PF5 (Save) to save the new definition.
- 4. Press PF3 (End) to return to the Master Symbol Table screen.

# Copying a Symbol within a Symbol Table

- To copy a symbol definition within a symbol table
  - 1. Type C in the line command input field of the selected symbol on the Master Symbol Table screen. Press Enter.

The Symbol Copy window opens.

- 2. Enter the name of the symbol to copy to in the **To Symbol** field.
- 3. Press PF3 (End) to copy the symbol and return to the Master Symbol Table screen.

# Modifying a Symbol in a Symbol Table

- To modify a symbol definition
  - 1. Type **M** in the line command input field of the selected symbol on the Master Symbol Table screen. Press Enter.

The Master Symbol Modification window opens in the same format as the Master Symbol Addition window (see Adding a Master Symbol Table). The window contains the current values and the Symbol Table and Symbol Name fields are not modifiable.

- 2. Enter your modifications.
- 3. Press PF5 (Save) to save the modified definition.
- 4. Press PF3 (End) to return to the Master Symbol Table screen.

## **Numeric Value Check**

- To carry out the numeric value check for a symbol of format N
  - Press PF8 (RgChk) on the Master Symbol Definition or Master Symbol screens.

The following window appears:

In the following example, a value was entered outside the specified value range. In this case, an error message appears and Entire Operations does not accept the invalid value. This also applies to symbol APIs.

```
0.02.00 *** Entire Operations 3.2.1 ***
Owner REQUEST Master Symbol Table P185905
                                                              14:02:15
10.02.00
Network P185905
! EOR0160 - Range is 1 thru 10
                   Master Symbol Modification
                                                                  ! 2.00 16:13
                                                                  ! 2.00 16:30
! Symbol Table ===> P185905___ Owner REQUEST ! 2.00 16:13
! Symbol Name ===> NUMBER___ Network P185905 ! 2.00 17:15
! Format ===> N Run ! 2.00 17:16
                                        Run
    Format ===> N
                                                                  ! 2.00 17:16
                                                               _ ! 2.00 17:17
          Value ===> 11_
                                                      .....! 2.00 17:17
: Be careful with insertions or deletions. ! 2.00 17:17 ! The 2 lines will be concatenated to one symbol value. ! 2.00 17:16 ! Prompting ===> A Update Mode ===> _ ! 2.00 17:16 ! Prompt Text ===>
   Prompt Text ===> ___
                            .....! 2.00 17:16
                                 ______! 2.00 17:16
!
                                                 ______ ! 2.00 17:16
! Enter-PF1---PF2---PF3-----PF5----PF9---PF10---PF11-- !
 ! Help Add End Save RgChk Mult Copy UsrRt ! F11--PF12---
```

## **Deleting a Symbol from a Symbol Table**

To delete a symbol from the master symbol table

1. Type **D** in the line command input field of the selected symbol on the Master Symbol Table screen. Press Enter.

A window opens in which you can confirm deletion by entering the symbol name.

- 2. Type in the symbol name.
- 3. Press Enter to delete the symbol.
- 4. Press PF3 (End) to return to the Master Symbol Table screen.

#### Note:

You can delete individual symbols from a symbol table even if the table is specified for one or more MAC-type jobs. If the symbol table is specified for any job, the deleted symbol cannot be substituted when the JCL is dynamically generated. The Monitor records this event by writing a message to the log.

# **Recursive Symbol Replacement**

Symbols can be used within other symbols.

#### **Example:**

Symbol	Value
PREFIX	EOR
STEPLIB	§PREFIXEXAMPLE.LOAD

§STEPLIB is replaced by EOR.EXAMPLE.LOAD.

#### Note:

If a point marks the end of a symbol, it is deleted on replacement. With recursive replacement, the deletion takes place replacement by replacement. Thus, a sufficient number of points must be coded. If a point is to remain at the end of the symbol, two points must be coded.

# Symbol Replacement in Job Control - JCL

For symbol replacement in Job Control (JCL) the following particularities apply:

Column 72 contains one blank <b>and</b> the columns 73 - 80 contain digits.	The columns 71-80 of the line are saved before the first replacement, and they are written back after the last replacement.
Column 72 contains a '-' (hyphen) and the columns 73-80 contain blanks.	The columns 71-80 of the line are saved before the first replacement, and they are written back after the last replacement.
Column 71 -80 contains ', ' (8 blanks behind the hyphen)	The columns 71-80 of the line are saved before the first replacement, and they are written back after the last replacement.
Intermediate results	Intermediate results can even be longer than 71 characters. They are only overwritten by possibly saved strings at the end of the replacement as a whole.

# **Copying a Master Symbol Table**

When defining a new master symbol table, you can select an existing table from the Master Symbol Table Maintenance facility as a model for the new table.

## To copy a master symbol table

1. In the Master Symbol Tables window, type **C** in the line command input field of the table to be copied. Press Enter.

The following window opens:

```
*** Entire Operations 3.2.1 ***
11.07.00
                                                 12:29:16
                   Main Menu User ID BRY
Owner SN
  Main !
  3 Calen!
                        ABC1
  5 Sym!
               Symbol Table Master Definition Copy
  6 Sys !
  7 Rep!
  8 Imp ! From To
9 Hel! Owner ==> SN____ Owner ==> SN
! Table ==> EX-ST-COMN Table ==> _____
          Alt. File ==> N (Y/N)
      ! PF3 End
Command => ! Enter-PF1--PF2--PF3----PF5----PF7--PF8--PF12- !
Enter-PF1--! Help Add End Save Up Down Menu! -PF11--PF12---
    Help +----+
```

The names of owner and table to copy **from** already appear in the From fields. (If necessary, you can also enter a different owner and table in the **From** fields).

- 2. To open selection windows for owners and tables, use an asterisk \* as wildcard.
- 3. Enter name of the owner and table to copy to in the To fields.

#### **Notes:**

- 1. If an alternate symbol table is defined in the **Entire Operations Defaults** (submenu of the System Services Menu), you can copy a symbol table from there by setting the Alt.File field to **Y**.
- 2. You can only copy a symbol table to another **owner** if you are authorized to access networks belonging to that owner.
- 3. You can copy a symbol table to an existing table and combine the two tables.
- 4. Press Enter to copy the table to a new table or to combine it with an existing table.
  - If you have simply copied to a new table, this new table is now listed in the Master Symbol Tables window.
  - If you have combined two tables, this is performed in the following manner:
    - All symbols and their values are copied successively from the source table to the

target table.

- If an identical symbol with identical value(s) exists in both the source and the target table, then this symbol is not copied.
- If, however, the values of this identical symbol differ, the following window opens:

```
11.07.00
                    *** Entire Operations 3.2.1 ***
                                                         10:16:18
Owner SN
                           Main Menu
            Symbol Table Master Definition Copy
 ! Identical Symbol detected - Please mark the desired Value
 ! M Owner Symbol-Tab Symbol
                                            modified by
      Copy from:
     SN DEMO STEPLIB
User Routine Library
Value NATOP.V110
                                                   27.11.99 11:53 !
                                            BRY
 !
                                             Multiple N
        Copy to:
               DEMO-2 STEPLIB
                                                  11.05.00 10:16 !
      User Routine Library
     _ Value NATOP.V210
                                              Multiple N
 ! PF3 End
Command => ! Enter-PF1--PF2--PF3----PF5----PF7--PF8--PF12- ! ___
Enter-PF1--! Help Add End Save Up Down Menu!-PF11--PF12---
    Help +----- Owner Mail
```

The column headings and input fields are explained in the following.

5. Use any character to mark the value to be retained in the target table after copying:

In the above example, the symbol STEPLIB was found in the source as well as in the target table.

- If you mark Value NATOP.V110, then the symbol STEPLIB in the table DEMO-2 will have Value NATOP.V110 after copying. Value NATOP.V210 is overwritten.
- If you mark Value NATOP.V210, the symbol STEPLIB in the table DEMO-2 retains this value.

#### Note:

Every time a symbol value in the target table is overwritten by the pertinent value in the source table, a corresponding message is written to the log. When the whole copying process has been completed, a message is also written to the log.

## Fields: Symbol Table Master Definition Copy - window

Field	Description
Value	Use any character to mark the symbol value to be retained.

# **Columns: Symbol Table Master Definition Copy - window**

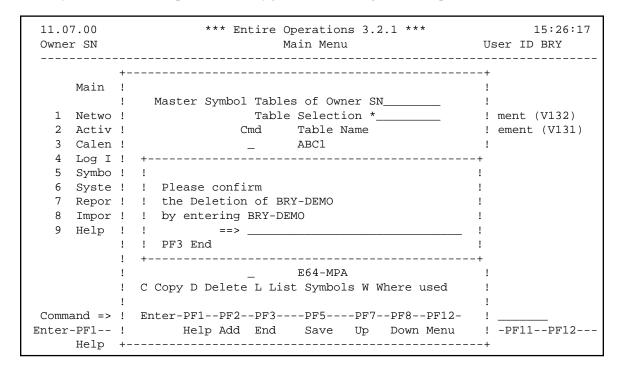
Column	Description
Owner	Owner of the source and of the target table.
Symbol Tab	Names of source and target tables.
Symbol	Name of the symbol which exists in both tables.
modified by	User ID of the person who last modified the table as well as date and time of last modification.
Multiple	Y = Multiple symbol values exist. N = Multiple symbol values do not exist.

# **Deleting a Master Symbol Table**

#### To delete a master symbol table

1. Type **D** in the line command input field of the selected symbol table in the Master Symbol Tables window. Press Enter.

If the symbol table is not specified for any job, the following window opens:



- 2. Enter the symbol table name.
- 3. Press Enter to delete the table.

# **Listing Jobs Using a Symbol Table**

If, during deletion, a message appears:

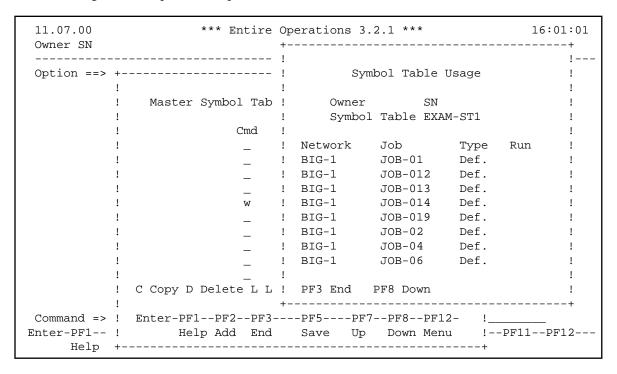
```
Symbol Table used in Definitions
```

This means that the symbol table is specified for one or more jobs.

#### To list the jobs in which it is used

• Type W in the line command input field of the selected symbol table in the Master Symbol Tables window. Press Enter.

The following window opens (example):



## Column Headings: Symbol Table Usage

Meaning of the column headings:

Column	Description			
Network	Name	Name of job network.		
Job	Job name.			
Type	Specifies whether job is active or not. Possible values:			
	Def. Symbol table is specified for job on the master data base.			
Run Symbol table is specified for active job.		Symbol table is specified for active job.		
Run	If the symbol table is used by an active job, this field displays the job's run number.			

You cannot delete a symbol table until you have either specified another symbol table for the job(s) which use it, or deleted all jobs for which it is specified.

# **Symbol Prompting**

# **Standard Symbol Prompting**

Entire Operations provides a standard method for symbol prompting. On a full-sized screen, all necessary symbols are displayed and can be modified by simply typing over them.

When a network is activated with symbols defined for prompting, the following screen appears:

11.07.00 Owner EXAMPLE	*** Entire Operations 3.2.1 *** 16:08:36 Symbol Prompting for Table EXAM-ST1
Network E62-NET	Run 261 on 11.07.00 at 16:08
C Symbol	Value
_ CLASS	G
_ JOBLIB	EOR.EXAMPLE.LOAD
_ MSGCLASS	X
_ PARM-1	8888
_ STEPLIB	EOR. EXAMPLE. LOAD
_	
_	
_	
_	
_	
_	
_	
_	
_	
H Help L Long Val	
******	****** Bottom of Data ****************
Enter-PF1PF2PF3-	PF4PF5PF6PF7PF8PF9PF10PF11PF12
End	Accpt Cncl Up Down

The Symbol Prompting screen lists all the symbols requiring prompting in the symbol table and their values. The symbol values are taken from the corresponding Master Symbol Table.

You can modify each symbol value or leave it unchanged. The new values remain in the symbol table until the symbol table is modified specifically or until the next prompting after manual activation of a job network that uses the symbol table.

#### **Notes:**

- 1. Values which are longer than 40 characters can only be modified using the line command **L**. Direct field processing is not allowed for these values.
- 2. If **plausibility checking** is defined for the symbol, you can only enter a valid symbol value. Incorrect values are rejected and a user-defined error message is issued.
- 3. Standard symbol prompting is not used in NET-type (subnetworks) jobs.

## **Line Commands: Symbol Prompting**

Cmd	Description	
Н	Display a help text for the symbol.	
L	Enter Value longer than <b>40</b> characters and modify other symbol parameters.	

## **PF Keys: Symbol Prompting**

Key	Name	Function
PF3	End	Cancel symbol prompting and restore to former status.
PF5	Accpt	Accept all symbols for this activation.
PF6	Cncl	Cancel this activation. If symbol prompting is done during a network or job activation, the corresponding activation is cancelled. Otherwise, only symbol prompting itself is cancelled.
PF7	Up	Scroll back to the top of the symbol list.
PF8	Down	If **** more **** appears in the bottom line, you can display more symbols by scrolling down with <pf8>. You must press this key to get to the last screen and accept all symbols with <pf5>.</pf5></pf8>

# Displaying a Help Text for a Symbol

- To display a short help text for a symbol
  - 1. Type **H** in the line command input field of the appropriate symbol on the Symbol Prompting screen.
  - 2. Press Enter.

A window opens with a short help text explaining the symbol.

# **Cancelling Symbol Prompting**

- To cancel symbol prompting
  - Press PF6 (Cncl).

# **Repeating Symbol Prompting**

- To repeat symbol prompting from the beginning
- Press PF6 (Cncl) to cancel the current network or job activation. Start the activation again.

# **Entering Long Symbol Values and Modifying Active Symbols**

If symbol **Value** is longer than the **40** characters on the Symbol Prompting screen, you can enter another **40** characters (up to a maximum of **80**) in the Active Symbol Modification window. This window also allows you to modify other symbol parameters.

#### To enter long symbol values and modify active symbols

• Enter **L** in the line command input field of the appropriate symbol on the Symbol Prompting screen. Press Enter.

The Active Symbol Modification window opens:

```
09.02.00 *** Entire Operations 3.2.1 ***
Owner REQUEST Symbol Prompting for Table P185905
Network P185905 Run 21 on
09.02.00
                                            16:25:11
                             Run 21 on 09.02.00 at 16:25
+----+
             Active Symbol Modification
                                         ! nger-than-o
!
                                         ! _
! Format ===> A
                              Run 21
!
     Value ===> This-is-a-very-long-value-which-is-much- !
       longer-than-one-line___
! Be careful with insertions or deletions.
! The 2 lines will be concatenated to one symbol value.
! Prompting ===> A
                         Update Mode ===> _
! Prompt Text ===> _____
! Help Add End Save RgChk Mult Copy UsrRt ! F11--PF12---
    _____+
```

This window allows you to modify the symbol value. The two lines of the Value field are concatenated for the long symbol value.

Be careful with insertions and deletions:

The 2 lines of the field Value will be concatenated to one symbol value.

## **Field Descriptions: Active Symbol Modification**

The fields in the Active Symbol Modification window are identical to the fields in the Master Symbol Addition window. For field descriptions, see Field Descriptions: Master Symbol Addition.

#### **PF Keys: Active Symbol Modification**

For a description of PF key functions, see PF Keys: Master Symbol Addition.

# **Accepting All Symbols and Printing Symbols after Prompting**

#### When you have made all desired modifications:

1. You must press PF5 (Accpt) from the **last screen** to confirm symbol prompting and accept all symbols for this activation.

If there are several screens of symbols, \*\*\*\* more \*\*\*\* will appear in the bottom line.

2. Press PF8 (Down) to display more symbols until you get to the last screen. You can now accept all symbols by pressing PF5.

You are then asked if you want to print the symbols. A window opens in which you can enter the printer name:

11.07.00 Owner EXAMPLE Network E62-NET	*** Entire Operations 3.2.1 *** 16:10:49  Symbol Prompting for Table EXAM-ST1  Run 261 on 11.07.96 at 16:08
	Value  G EOR.EXAMPLE.LOAD  X 8888  EOR.EXAM +

- 3. Enter the printer name in the field Please enter printer.
- 4. Press Enter to print the symbols to the selected printer.

If you do not want to print the symbols, press PF3 (End) to return to the Symbol Prompting screen.

If you generally do not want to print the symbols or display the above window, enter N for the function Symbol Printing after Prompting under Reporting in your profile settings. For more information, see the subsection Reporting Functions in Section System Administrator Services of the Entire Operations Administration Documentation.

# **User-defined Symbol Prompting**

If you want to use your own prompting screens, with your own help, plausibility checks, etc., you can define customized prompting routines to activate job networks.

#### To define your own symbol prompting routines

1. Select the Network and Job Maintenance option from the Main Menu. Press Enter.

The Network Maintenance screen appears.

2. On the Network Maintenance screen, type **M** in the line command field of the network for which symbol prompting is to be defined. Press Enter.

The Network Modification window opens with the current values for the network.

3. Press PF8 (SP-UR).

The Symbol Prompting User Routine window opens:

Write the user routine as a Natural subprogram and use the supplied parameter list NOPSYP-A (see Symbol Modification without Prompting). This parameter list contains all needed environment parameters. The list of symbol tables used for this network activation will be passed to the Entire Operations API routine.

The symbols must be read and updated by the Entire Operations API routine NOPUSYxN (x = 1, 2, ...), which allows sequential reading in the active symbol table.

#### **Field Descriptions: Symbol Prompting User Routine**

The input fields of the Symbol Prompting User Routine window are described in the following table:

Field	Description
Natural Library	Enter the name of the Natural library, where the symbol prompting user routine resides.
User Routine	Enter the name of the symbol prompting user routine.
Modification without Prompting	If you enter <b>Y</b> , symbol modification is managed by the user routine specified. If you enter <b>N</b> , user performs symbol prompting interactively (in dialogue with Entire Operations).  If you enter <b>B</b> , user <b>first</b> performs symbol prompting interactively and <b>then</b> symbol modification is managed by the specified user routine. This allows you to set other symbols which are dependent on prompting.

#### **PF Keys: Symbol Prompting User Routine**

You can perform the following functions from the Symbol Prompting User Routine window using these PF keys:

Key	Name	Function
PF5	Refr	Forces an update of the user routine in the internal exit directory.
PF9	Delete	Delete data for symbol prompting user routine entered here.

# **Symbol Modification without Prompting**

You can adapt the symbol table for each run by defining a user routine without prompting (in background). Set the field Modification without Prompting in the Symbol Prompting User Routine window to  $\mathbf{Y}$ .

The user routine is called by the Entire Operations Monitor after the creation of the active symbol tables, but before the JCL loading. If the user routine is missing or receives a run time error, the network activation is stopped and a message is sent to the mailbox, which is assigned to the network as message recipient. If no mailbox is assigned, the message is sent to the SYSDBA mailbox. For more details on mailboxes, see Section Mailboxes.

Code the user routine analogous to the symbol prompt user routine and use the delivered parameter list NOPSYP-A. Do not code any screen I/O's.

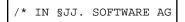
```
NOPSYP-A
   ENTIRE OPERATIONS
   USER ROUTINE PARMLIST FOR
   SYMBOL PROMPTING
   27.02.92 CREATED
                                         /* (E-0026)
   19.10.92 ADD NW SYMBOL TABLE
19.05.95 REWRITE MOD. SYMBOLS
                                        /* (114821)
                                        /* (114821)
                    A 3 /* FROM WHERE CALLED IN NOP
 1 P-CALL-PLACE
     'SYP' SYMBOL PROMPTING ONLINE
     'SYM' SYMBOL MODIF. BATCH
                                        (110745)
                            N 4 /* OUT: RETURN CODE
 1 P-RC
                                            0 OK
                                            1 NO SYMBOLS PROMPTED
                                            2 ACTIVATION CANCELLED
                                            IN:
                                                 REWRITE MODIFIED SYMBO
                                                 TO SYMBOL MASTER (14091
                                       70 /* OUT: RETURN TEXT
 1 P-RT
                                      10 /* OWNER OF NETWORK
 1 P-OWNER
                                   Α
 1 P-NETWORK
                                      10
                                   Α
                                       10
 1 P-JOB
 1 P-RUN
                                      13
                                  Т
 1 P-ACTIVATION-TIME
 1 P-EARLIEST-START
                                  Т
 1 P-NETWORK-SYMBOL-TABLE
                                  A 10 /* NETWORK DEFAULT TABLE
                                 A 12 (1:20)
 1 P-SYMBOL-TABLES
                                         /* REDEF. BEGIN : P-SYMBOL-TAB
R 1 P-SYMBOL-TABLES
 2 P-SYMBOL-TABLES-1
                                         (1:20)
                           A
  3 P-SYMBOL-TABLE-STATUS
                                      2
                                             '00' EXTRACTED; UNDEFINED
                                             '10' NO PROMPTING NECESSARY
                                             '20' PROMPTING REQUIRED
                                            '30' PROMPTING DONE
  3 P-SYMBOL-TABLE
                                  Α
                                     10
  1 P-DATE-FORMAT
                                            A AMERICAN
                                            E EUROPEAN
                                            G GERMAN
                                            I INTERNATIONAL
   -- END OF PARAMETER AREA --
```

## **Symbol Replacement**

## **Escape Character and End of Symbol**

Symbols to be replaced are detected by a preceding **escape character** anywhere in the JCL. The symbol name is limited by a text delimiter, like a blank, a comma (,), a semicolon (;), a period (.), etc. A single period (.) after a symbol is removed during replacement. But two consecutive periods (..) are converted to one period (.). This is important for the dynamic creation of file names. Recursive symbol replacement (symbols within symbols) is also possible.

### **Example: Recursive Symbol Replacement**



changes to the following, when J = 19 and  $JJ = \S J.95$ :

```
/* IN 1995 SOFTWARE AG
```

The advantage of this method is that symbol replacement is performed within the fixed positions.

### **Algorithm**

The following algorithm is used for symbol replacement:

1. Search for the symbol farthest to the left.

If none (or no more) available -> end.

2. Replacement

In case of error -> end.

3. Write updated line.

Continue at (1).

This makes recursive symbol replacement (symbol with symbols) possible.

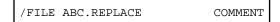
### **Fixed Positions within the Line**

Multiple symbol replacement can cause a shift within a line. However, in the following cases, parts of the line are kept in a fixed position:

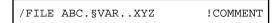
- 1. Symbols do not follow one another directly.
- 2. The columns 72 to 80 always remain fixed. If column 70 contains a blank and column 71 a comma, then these will also remain fixed.
- 3. If a symbol is followed by at least 2 blank spaces, the rest of the line is kept in its original position, unless the symbol value would overlap with it. For example:



changes to the following, when VAR=REPLACE:



4. If a symbol is followed directly by continuous text, then by at least 2 blank spaces, then by an exclamation point! and continuous text: the symbol is replaced as in (2) and the exclamation point! is replaced with blank spaces. For example:



changes to the following, when VAR=REPLACE:

/FILE ABC.REPLACE..XYZ COMMENT

### Symbol Replacement with Multiple Symbol Values

To replace a symbol with multiple values when a job is activated numerous times concurrently, you must use P-SUFFIX. to identify the variable to be replaced. This is the variable you entered in the Suffix Symbol field in the Master Job Definition window (see the field description in Section Job Maintenance).

Multiple symbol replacement is performed, only if you use P-SUFFIX as the placeholder for this variable. For information on defining multiple symbol values, see here.

#### Note:

If Suffix Symbol contains no values, then the multiple job is activated as a temporary dummy job.

You obtain a specific occurrence of a multiple symbol by using the symbol function MV (multiple value) delivered with Entire Operations.

### **Predefined Symbols**

The following symbols can be used without defining them in a symbol table:

Symbol	Format	Description	
*DATD	(A8)	Date in the format DD.MM.YY.	
*DATE	(A8)	Date in the format DD/MM/YY.	
*DATG	(A15)	Date in the format DDmonthYY.	
*DATI	(A8)	Date in the format YY/MM/DD.	
*DATJ	(A5)	Date in the format YYDDD (Julian).	
*DATN	(N8)	Date in the format YYYYMMDD.	
*DATU	(A8)	Date in the format MM/DD/YY.	
*TIME	(A10)	Time of day in the format HH:MM:SS.	
*TIMN	(P13)	Time of day in the format HHMMSST.	
P-OWNER	(A10)	Owner of the network.	
P-NETWORK	(A10)	Network.	
P-RUN	(N5)	Run number of the network.	
P-JOB	(A10)	Job.	
P-NADIR	(A250)	Directory for temporary files for this network (UNIX and Windows NT). If the job is executed under Unix, this field also contains the Unix group from Version 3.1.1.	
P-MUL	(A8)	User who made last change (in lower case).	
P-MUU	(A8)	User who made last change (in upper case).	

P-SUL	(A8)	Job start user ID (in lower case).	
	, ,	,	
P-SUU	(A8)	Job start user ID (in lower case).	
P-SUBMIT-ID	(A8)	BS2000 user ID, under which the job was started (BS2000 only).	
P-SYSOUT	(A54)	Name of the sysout file. This variable is dependent upon the operating system, in which the job is executed:  BS2000: available any time after the activation. OS/390, VSE/ESA, etc: not available. The value is set to ''. UNIX: available any time after the activation. Windows NT: available any time after the activation. The file name is returned in Unix syntax.	
P-DATE	(A8)	Execution date in the format YYYYMMDD. Date of previous day is transmitted, if the end time of the previous production day has not yet been reached.	
P-NODE	(N3)	Execution node.	
P-EXEC-NODE	(N3)	Execution node.	
P-SYMBOL-TABLE	(A10)	Symbol table.	

Symbols for multiple, parallel activations:

Symbol	Format	Description
P-SUFFIX	(A10)	The job name suffix, if multiple, parallel job activation is in use. You can find detailed information about multiple, parallel job activation in Sections Job Maintenance.
P-MPA	(A50)	The full current value of the symbol containing the job name suffix, if multiple, parallel job activation is in use. To redefine this field, code:  § 1 P-MPA (A50)  § 1 REDEFINE P-MPA   #GET-SYMBOL P-MPA

Symbols, which are available in subnetworks and recovery jobs. These symbols have the value of a blank, unless they are used in a sub-network or a recovery job.

Symbol	Format	Description	
P-C-OWNER	(A10)	Owner of the calling job.	
P-C-NETWORK	(A10)	Owner of the calling job.	
P-C-RUN	(P13)	Run number of the calling job.	
P-C-JOB	(A10)	Name of the calling job.	
P-C-SUFFIX	(A10)	The suffix value of the job which <b>invoked the sub-network</b> where the symbol is used.	
P-C-MPA	(A50)	The full current value of the symbol, containing the suffix of the job which invoked the sub-network, if multiple, parallel job activation is in use in the calling network. To redefine this field, code:  § 1 P-C-MPA (A50)  § 1 REDEFINE P-C-MPA   #GET-SYMBOL P-C-MPA	

# **Reserved Symbols with Special Meaning**

### **UNIX and Windows NT**

Symbol	Format	Description
CMDLINE- <job></job>	(A80)	Command line parameter for UNIX shell scripts and Windows NT .BAT files and programs which are can be executed directly under Windows NT. Several parameters, separated by blanks, can be contained in this symbol. <job> is to be replaced by the job name.</job>

# **Mainframe Platforms**

Symbol	Format	Description
SYSOUT-NODE-GLOBAL	(N3)	(Only in table SYSDBA/A) If this sysout exists and contains a valid Entire System Server node number in the range of 1-255, sysout file copies for Entire Output Management are created on this node.
JCL-NODE	(N3)	If this symbol is found during job activation, this node is used as JCL node for the active job.
SUBMIT-NODE	(N3)	If this symbol is found during job activation, this node is used as job start node for the active job.
SYSOUT-NODE	(N3)	If this symbol is found during job activation, this node is used as sysout node for the active job. This symbol supersedes SYSOUT-NODE-GLOBAL.

The symbols JCL-NODE, SUBMIT-NODE and SYSOUT-NODE are sought for in the following symbol tables:

- first in the active symbol table of the job;
- if it is not found: in the active symbol table of the network;
- if it is not found and if it is in the subnetwork: in the active symbol table of the calling job of type NET:
- if it is not found: in the active symbol table of the calling network.

The last two steps may be repeated recursively ascending.

#### **Special Symbol Value**

M resp. MASTER: The corresponding node is always taken from the master definition of the job.

# **Symbol Replacement in Subnetworks**

To be able to enter symbols in subnetworks as well, you can attach a symbol table to the main network; this table contains all symbols to be queried in the jobs of the subnetwork(s). At the same time, the symbol tables can be linked to the corresponding jobs of the subnetwork(s) by means of symbols whose values are not to be retrieved. After symbol entry, this creates active symbol tables attached to the main network.

On job level, Entire Operations tries to load the symbols from the level(s) above if a symbol with the corresponding symbol table is not found, for example from the active symbol table of the main network. Entire Operations does not create active symbol tables on subnetwork job level as the run numbers are not yet known at the time of the main network's activation and as symbol prompting is activated first.

The following example screens illustrate the procedure:

```
*** Entire Operations 3.2.1 ***
26.08.00
Owner GFR
                         Network Maintenance
Selection OR
                                                               !
 !
                        Network Modification
 ! Network ===> SUB-1
                                           Owner ===> GFR
   Description ===> sub-1__
 !
                                    Loop existing ===> N !
   Default Values for the Jobs
    Execution Node ===> 146 MVS/ESA Symbol Table ===> GFR-ST3____
 !
 !
     JCL Node ===> 146 MVS/ESA
     JCL Location ===> ___
                        _ Sym.Table Activation Mode ===> X
 !
 !
     File ===> _
 !
                                          Password ===>
 !
     VolSer ===> ___
 1
   --PF1----PF3----PF5---PF6---PF7---PF8---PF9---PF10---PF11---PF12--
 !
     Help End Save Spec Symb SP-UR DfJb Copy MsgRe Menu!
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add End Save Up Down
```

Main network with symbol table containing symbols to be queried (GFR-ST3).

```
26.08.00
                *** Entire Operations 3.2.1 ***
                   Job Maintenance
Owner GFR
                                         Network SUB-1
______
Cmd C R PU Job Type Description
                                File or Library
        *_____
        DUMMY DUM dummy SUB-11 NET
  C1
       SUB-11
               NET
                                 GFR/TESTNET10
A Depend. C Copy D Delete E Edit G Pregen. I Input Cond. J JCL L Resources
M Modify O EOJ Chk + Act P Prose R Activate S Scheduling Parms U Add.Log
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
   Help Add End Save Up Down
```

This screen shows the main network's jobs DUMMY and SUB-11 with symbol table.

```
!
                   Job Definition (Master)
 !
 !
 ! Job Name ==> DUMMY_____ Mod ==> GFR 27.10.99 17:10 !
 ! Description ==> dummy_____
! Job Type ==> DUM
 !
  Execution Node ==> 146 MVS/ESA
                        Symbol Table ==> GFR-ST3_
  Special Type ==> _
 !
  !
                        Escape Characters: Activation ==> §
 !
                                                     !
 !
                                        Submit ==> $ !
 !
 ! Enter-PF1---PF2--PF3--PF4---PF5---PF6---PF7------PF9--PF10---PF12- !
! Help Add End Edit Save Spec Symb JCL Copy Menu !
+----+
A Depend. C Copy D Delete E Edit G Pregen. I Input Cond. J JCL L Resources
M Modify O EOJ Chk + Act P Prose R Activate S Scheduling Parms U Add.Log
Command => ___
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add End Save Up Down
```

The symbol table containing symbols to be queried (GFR-ST3) is linked to the dummy job. No symbol tables are attached to the subnetworks themselves.

```
-----+ 1
 !
                   Job Definition (Master)
  Job Name ==> TESTJOB11_ Mod ==> GFR 27.10.99 16:37
  Description ==> _____
Job Type ==> JOB
 !
 !
   Execution Node ==> 148 MVS/ESA
 !
 !
                                                     !
 !
  Special Type ==> _
                        Symbol Table ==> GFR-ST2___
                                                     !
 ! Restartable ==> _
                       Suffix Symbol ==> _____
                        Escape Characters: Activation ==> § !
 1
                                       Submit ==> $ !
 !
 !
 ! Enter-PF1---PF2--PF3--PF4---PF5---PF6---PF7-------PF9--PF10---PF12- !
      Help Add End Edit Save Spec Symb JCL Copy Menu!
 +----+
A Depend. C Copy D Delete E Edit G Pregen. I Input Cond. J JCL L Resources
M Modify O EOJ Chk + Act P Prose R Activate S Scheduling Parms U Add.Log
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
   Help Add End Save Up Down
```

On the lowest job level, a symbol table is linked whose symbols are not queried (GFR-ST2). You can make the JCL definition through PF9.

```
! 0
 !
    !
                                         ! er
 !
             Job: JCL Definition (Master)
                                         !
!
                                         ! 4
! Job Name ==> TESTJOB11 Mod ==> GFR 27.10.99 16:37 !
! Description ==>
! Job Type ==> JOB
! Execution Node ==> 148 MVS/ESA Symbol Table ==> GFR-ST2
! JCL Location ==> PDS
! JCL Node ==> 148 MVS/ESA
! File/NatLib ==> SN.GFR.SOURCE___
! Member ==> IEFBR14_ _
! VolSer
          Help End Edit Save Spec Symb Impo Menu
+----- q
Command =>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
  Help Add End Save Up Down Menu
```

Job definition (master, part 2 (JCL definition).

This screen shows the master symbol table GFR-ST2.

```
26.08.00
               *** Entire Operations 3.2.1 ***
                                                11:08:34
Owner GFR
                Master Symbol Table GFR-ST3
Network SUB-1
                                               Run
C Symbol F P Value
                                     modified by
                                     GFR 04.08.97 16:07
_ CLASS
              A A G
_ MSGCLASS A A X
                                     GFR
                                           04.08.97 15:05
C Copy D Delete M Modify
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
    Help Add End
                  Save Up Down Print
```

This screen shows the master symbol table GFR-ST3.

This screen shows the active JCL for TESTJOB11.

This screen shows the master JCL for TESTJOB11.

# **Symbol Functions**

A symbol function is a function on a symbol to be replaced in the JCL of a job. This allows symbols to be replaced dependent on a condition and allows the same JCL to be used for very different situations. Now symbols can be replaced much more flexibly than was the case with standard symbol replacement via symbol tables. You can use the symbol function which is integrated into Entire Operations or you can use user routines to define your own symbol functions.

# **Integrated Symbol Function !D, ?D - Date**

The symbol function **D** (date) allows you to design dates in generated JCL more flexibly. This function calculates date values using the current date as a basis.

### **Syntax**

```
§!D<type|period|offset[|offset-unit][,edit-mask][,calendar]>
     or
 §!D<T[,edit-mask]>
     or
 §!D<yyyymmdd,edit-mask>
Examples
```

```
§!D<AD-1>
```

```
§?D<WW+1,DDMMYY>
```

```
§!D<T,YYMMDD>
```

§!D<19971001,DD.MM.YY>

### **Function**

Calculation of date values from the current date.

# **Return Format**

See edit-mask.

# **Parameters**

The parameters are written one behind the other without spaces.

Syntax Element	Parameter	Explanation
type	Т	current date
	A	all days (365 resp. 366 days a year)
	С	calendar days (days defined as working days in the calendar)
	S	schedule days
period	С	from current day
	W	week
	M	month
	19	one month backnine months back
	Q	quarter
	Y	year
offset		positive or negative number with prefix
offset-unit	D	days (default)
(unit for the offset - optional, only evaluated for type A (all days))	W	weeks
Tot type II (un days))	M	months
	Q	quarters
	Y	years

Syntax Element	Possible Values	Examples
edit-mask	DDMMYY	171101
(date format, optional)	DDMMYYYY	17112001
	DD.MM.YYYY	17.11.2001
	YYMMDD	011117
	YY.MM.DD	01.11.17
	YYYY.MM.DD	2001.11.17
	DD	25 (day)
	DD.MM.YY	25.12.96
	MM	10 (month)
	YY	01 (2-digit year)
	YYJJJ	01134 (Julian)
	YYYY	2001 (4-digit year)
calendar		See Referring Objects, Calendar below.
yyyymmdd		Date in format YYYYMMDD.

# **Referring Objects**

Syntax Element	Meaning
Owner	The owner of the network from which the function was called.
Calendar	If a calendar was specified explicitly, this is taken for calendar calculations. This calendar must exist under the current owner. If it is not found there, it is searched for under the owner SYSDBA.  Otherwise, the calendar of the current schedule is taken. If no calendar has been defined, all days are working days.

If this parameter is missing or if an unknown format has been used, the date is returned in the format YYYYMMDD (example: 19961117).

# Symbol Function !E, ?E - Date, Date Offset

# **Syntax**

§!E<date,offset[,edit-mask]>

# **Examples**

§!E<19971001,+28>

§!E<19971001,-7,F10>

# **Function**

A number of days is added to or subtracted from a given date in format YYYYMMDD.

### **Return Format**

Date in format YYYYMMDD

### **Parameters**

The parameters are separated by a comma.

<b>Syntax Element</b>	Description
date	Date in format YYYYMMDD
offset	Positive or negative number with sign (+/-). Unit: days.
edit-mask	See subsection Edit Masks for Date Functions (below).

### **Edit Masks for Date Functions**

The edit mask can be entered either directly or with a format sign. The format sign can be used to shorten the function call.

Format Sign	Format	Example
F1, 1	DD	17
F2, 2	DDMM	1711
F3, 3	DDMMYY	171100
F4, 4	DDMMYYYY	17112000
F5, 5	DD.MM.YY	17.11.00
F6, 6	DD.MM.YYYY	17.11.2000
F7, 7	DD/MM/YY	17/11/00
F8, 8	DD/MM/YYYY	17/11/2000
F9, 9	DD-MM-YY	17-11-00
F10, 10	DD-MM-YYYY	17-11-2000
F11, 11	MM	11

F12, 12	MMDD	1117
F13, 13	MMYY	1100
F14, 14	MM.YY	11.00
F15, 15	MMYYYY	112000
F16, 16	MM.YYYY	11.2000
F17, 17	NN	Mi weekday (language-dependent)
F18, 18	O	3 number of the weekday
F19, 19	ww	35 number of the week
F20, 20	YY	00
F21, 21	YYJJJ	00330
F22, 22	YYMM	0011
F23, 23	YYMMDD	001117
F24, 24	YYYY	2000
F25, 25	YYYYJJJ	2000330
F26, 26	YYYYMM	200011
F27, 27	YYYYMMDD	20001117
F28, 28	YYYY.MM.DD	2000.11.17
F29, 29	YYYY/MM/DD	2000/11/17
F30, 30	YYYY-MM-DD	2000-11-17
F31, 31	YY.MM.DD	00.11.17
F32, 32	YY/MM/DD	00/11/17
F33, 33	YY-MM-DD	00-11-17
F34, 34	QQ	MI weekday (language-dependent) in upper case

# Symbol Function !MV - Symbol Function for Using Multiple Symbol Values

# **Syntax**

§!MV<symbol,index>

# **Examples**

§!MV<ARRAY,1>

§?MV<ARRAY,§INDEX>

### **Function**

Accessing single occurrences of a multiple symbol.

### **Return Format**

Symbol value.

### **Parameters**

The parameters are separated by a comma.

Syntax Element Description	
symbol	Name of the multiple symbol
index	Index of the symbol value

### **Errors**

In the following cases, 'Symbol not found' appears:

- multiple symbol not found
- Index missing
- Index not numeric
- Index too high

# **Reference Objects**

Syntax Element	Description
Symbol table	The symbol table of the active job is always used.

# Symbol Function !W, ?W - Date Calculations Relative to a Calendar

### **Syntax**

§!W<argument-symbol>

### **Parameters**

Syntax Element   Possible Values	Description
----------------------------------	-------------

argument-symbol	<formula> [,<edit-mask>] [,<owner>] [,<calendar>]</calendar></owner></edit-mask></formula>	Symbol containing the four arguments as values. This symbol itself can be composed of symbols. These symbols may currently only be introduced by the activation escape symbol defined in the Entire Operations defaults.
Formula	<date><period> <point><just-in-period><offset> <unit><point> <just-in-unit></just-in-unit></point></unit></offset></just-in-period></point></period></date>	
date	YYYYMMDD YYMMDD DDMMYYYY DDMMYY	Reference date in the valid Natural date format.  MM, DD, [YY]YY can be separated by '/', '-' or '.'.
Period	A C W M Q S Y	Days Working days Week Month Quarter Semester Year  The limits of the date period are only left if <offset>*<unit> is longer (or equal to) the period. If <offset>*<unit> is shorter than the period, but would not match the beginning or end of the period, the first or the last (working) day of the period is returned.</unit></offset></unit></offset>
Point	F L S	First day in period or unit.  Last day in period or unit.  Calculated date in period or unit.
just-in-period	B A	If holiday, before. If holiday, after.
offset		Integer preceded by sign.
unit	Like <period></period>	Like <period>.</period>
edit-mask	<type><format></format></type>	
type	<pre>D<date-format> N<number-format> C<name-format></name-format></number-format></date-format></pre>	
date-format		See Symbol Function W: Output Date Formats
number-format	<unit><period> <supression> <just></just></supression></period></unit>	

unit	Like <period></period>	Number of the <unit> in the <period>. This entails that the specified period must be larger than the unit.</period></unit>
period	Like <period></period>	
suppress	Z	Suppression of leading zeroes.
just	R L	right justified left justified
name-format	<unit><language><character><length></length></character></language></unit>	
unit	D M	Day Month
language	1 2 nn	English German valid natural language code
character	U L	Name only in upper-case letters. Only first character in upper case.
length		Display length.
owner		Owner of the reference calendar.
calendar		Reference calendar for date calculation. If the formula contains a calendar reference such as C for working day, B for working day before holiday or working day after holiday, the specification of a reference calendar is mandatory.

# **Function**

Calculation of date values from current date.

# **Return Format**

See edit-mask.

# **Symbol Function W: Output Date Formats**

Format	Example
DD	17
DDMM	1711
DDMMYY	171100
DDMMYYYY	17112000
DD.MM.YY	17.11.00
DD.MM.YYYY	17.11.2000

DD.MM.YY	17.11.00
DD.MM.YYYY	17.11.2000
DD/MM/YY	17/11/00
DD/MM/YYYY	17/11/2000
DD-MM-YY	17-11-00
DD-MM-YYYY	17-11-2000
JJJ	330
JJJYY	33000
JJJYYYY	3302000
MM	11
MMDD	1117
MMYY	1100
MM.YY	11.00
MMYYYY	112000
MM.YYYY	11.2000
ww	35 Number of the week
WWYY	5000 Week and year
WWYYYY	502000 Week and year
YY	00
YYJJJ	00330
YYMM	0011
YYMMDD	001117
YYWW	0050 Year and week
YYYY	2000
YYYYJJJ	2000330
YYYYMM	200011
YYYYMMDD	20001117
YYYYWW	200050 Year and week
YYYYMM	200011 Year and month
YYYY.MM.DD	2000.11.17
YYYY/MM/DD	2000/11/17
YYYY-MM-DD	2000-11-17
YY.MM	00.11
YY.MM.DD	00.11.17

YY/MM/DD	00/11/17
YY-MM-DD	00-11-17

# **User Routines for Symbol Functions**

You can make your own symbol functions available via exits in Entire Operations.

Syntax for symbol functions:

§!function<parm1,...,parmn>

### Example: §!RANDOM<20,1>

You should take the following points into consideration for the above example:

- For a function to be recognized, an exclamation point (!, BS2000 ö) or a question mark (?) must always follow the escape character (here §).
- The parameter list is optional and is enclosed in angle brackets (<, >). No spaces are allowed between function name and parameter list.
- Parameters should be separated by commas.
- The total length of the function call may not be longer than 20.
- The symbol functions must be located in the SYSEOR library.
- The parameters are passed to the function in an extra field.
- The Entire Operations Monitor performs logging of symbol replacement. Additional logging may also be performed.
- After successful replacement, the symbol value is written to the active symbol table of the job. The symbol function is **not** called for subsequent replacements. Instead, the value is read from the active table.

The names of the symbol function exits begin with SX. Since the length of the names of Natural objects is limited to **8** characters, the function name (without !) can have a maximum length of **6** characters.

### **Example:**

The function !RANDOM is handled in the routine SXRANDOM.

The symbol function exists are called with the parameter list NOPXPL-A, so the first line of the exit should be:

DEFINE DATA PARAMETER USING NOPXPL-A

Meaning of the parameters in NOPXPL-A:

Parameter	Format	Use	Use		
P-CALL-PLACE	(A03)	(in)	Constant SFX.		
P-RC	(N04)	(out)	Return code:		
			0	Function ok.	
			4511	Symbol not found.	
P-RT	(A66)	(out)	Return text (can be used fo	or exact error description, optional).	
P-OWNER	(A10)	(in)	Network owner.		
P-NETWORK	(A10)	(in)	Job network.		
P-JOB	(A10)	(in)	Job.		
P-RUN	(P13)	(in)	Run number.		
P-EXECUTION-NODE	(N03)	(in)	Entire System Server execution node.		
P-SYMBOL-TABLE	(A10)	(in)	Name of the defined symbol table.		
P-SYMBOL	(A20)	(in)	Function parameter, without brackets.		
P-SYMBOL-VALUE	(A54)	(out)	Symbol value (function result).		

#### **Notes:**

- 1. In the field P-SYMBOL, **only the function parameters** (without brackets) are transferred. The function names can be identified from the Natural variable \*PROGRAM.
- 2. Any field from NOPXPL-A not listed above may not be used, because its contents are invalid.

# **Example:**

### **Symbol Function**

```
* SYMBOL FUNCTION EXIT EXAMPLE
* SXQS<PARM1>
* CROSSFOOTING OF THE PARAMETER
DEFINE DATA PARAMETER USING NOPXPL-A
LOCAL
1 #I (I02)
1 #N (I02)
1 #SUM (I02)
1 #A (A01)
END-DEFINE
RESET #SUM
F1. FOR \#I = 1 TO 20
 #A := SUBSTR (P-SYMBOL, #I,1)
 IF #A IS (N1)
    #N := VAL(#A)
   ADD #N TO #SUM
 END-IF
END-FOR
          /* F1.
P-SYMBOL-VALUE := #SUM
RESET P-RC P-RT
```

#### **Master JCL**

```
//SN000001 JOB ,SN,CLASS=K
//IEFBR14 EXEC PGM=IEFBR14
//*
//* +!D<AQ+1>
//* §!D<AQ+1>
//*
//* +!QS<4711>
//* §!QS<4711>
//*
//* +!QS<+*DATE>
                               NESTED SYMBOLS
//* +!QS<§*DATE>
                               NESTED SYMBOLS
//* §!QS<§*DATE>
                               NESTED SYMBOLS
//*
                            NESTED FUNCTIONS
//* +!QS<+!D<AM-1>>
//* +!QS<§!D<AM-1>>
                               NESTED FUNCTIONS
//* §!QS<§!D<AM-1>>
                                NESTED FUNCTIONS
//*
```

#### **Active JCL**

```
//SN000001 JOB ,SN,CLASS=K
//IEFBR14 EXEC PGM=IEFBR14
//*
//* +!D<AQ+1>
//* 19960101
//*
//* +!QS<4711>
//* 13
//*
//* +!QS<+*DATE>
                                  NESTED SYMBOLS
//* +!QS<11/01/96>
                                  NESTED SYMBOLS
//* 18
                                  NESTED SYMBOLS
//*
//* + !QS < + !D < AM - 1 > >
                                  NESTED FUNCTIONS
//* +!QS<19960131>
                                  NESTED FUNCTIONS
//* 30
                                  NESTED FUNCTIONS
//*
```

#### **Active Symbol Table**

```
Symbol
                F A Wert
                                                modified by
                                                EORMON 11.01.96 17:25
!D<AM-1>
                A E 19960131
               A E 19960101
!D<AQ+1>
                                                EORMON
                                                       11.01.96 17:25
!QS<11/01/96>
               A E 18
                                                EORMON 11.01.96 17:25
                                                EORMON 11.01.96 17:25
!QS<19960131>
               A E 30
                                                        11.01.96 17:25
!QS<4711>
                A E 13
                                                EORMON
                                                SN
                                                        10.11.95 13:13
Χ
                A E x
```

# **Mailboxes**

This section covers the following topics:

- Displaying Mailbox Messages
- Access to Messages
- Message Types
- Origin of Mailbox Messages
- Group Mailbox
- SYSDBA Mailbox
- User Mailbox
- Clearing Mailboxes

# **Displaying Mailbox Messages**

If a mailbox assigned to you has any entries, the message **You have Mail** appears in the top left-hand corner of your screen:

```
EOR1500 - You have Mail
             *** Entire Operations 3.2.1 *** 10:16:27

Main Menu User ID BRY
11.07.00
Owner SN
      Main Menu
                                               DC Solutions
  1 Network and Job Maintenance 20 Entire Event Management (V132)
2 Active Job Networks 21 Entire Output Management (V134)
  3 Calendar Maintenance
  4 Log Information
  5 Symbol Tables
  6 System Administrator Services
  7 Reports
                                                Applications
  8 Import/Export
  9 Help
                                           30 sysmain
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help End
                                                                  Owner Mail
```

# To view the contents of the mailbox(es)

- 1. Type MAIL on the command line or press PF12 (Mail) on the Main Menu.
- 2. Press Enter.

The Mailbox - Messages and Requests screen appears:

	*** Entire Operations 3.2.1 *** 10:41:09 Mailbox - Messages and Requests
Cmd Date Time Mailbox	Description
_ 10.07 09:15 BRY	==> SN / DEMO-NET / 191 / MESSAGE
_ 10.07 13:21 BRY _ 10.07 13:02 BRY 10.07 09:15 BRY	PAPER-READY - 549 - RUN not found PAPER-READY - 550 - RUN not found 1 NETWORK DEMO-NET ACTIVATED
- 10.07 05:13 BRT - 10.07 15:34 BRY	==> SN / DEMO-NET / 193 / MESSAGE Symbol Prompting E60-FLOW Run 530 (OVER START TIME)
_ 10.07 15:35 BRY _ 11.07 09:32 BRY	Symbol Prompting E60-FLOW Run 531 (in 1:12 hours) 2 NETWORK DEMO-NET ACTIVATED
_ 11.07 09:15 BRY	==> SN / DEMO-NET / 194 / MESSAGE NETWORK DEMO-NET ACTIVATED ==> SN / DEMO-NET / 195 / MESSAGE
	****** more ************************************
Command =>	racter for specific actions.
Enter-PF1PF2PF3 Help End	PF4PF5PF6PF7PF8PF9PF10PF11PF12 Save Up Down Menu

<sup>&</sup>lt;sup>1</sup> PAPER-READY - 549 - RUN not found : example of Waiting for Condition.

# **Access to Messages**

You are allowed to display the contents of all mailboxes to which you are linked. The link is defined in the Entire Operations user definition.

### Column Headings: Mailbox - Messages and Requests

The following table explains the column headings for the data listed on the Mailbox - Messages and Requests screen:

Column	Description
Cmd	One-character line command input field. Mark with any character.
Date/Time	Date and time when message was sent. You can enter starting date and time in the input fields directly below the column headings.
Mailbox	Mailbox to which the message was sent.
Description	Short text of the message. More details can be made available by using line commands

<sup>&</sup>lt;sup>2</sup> Symbol Prompting E60-FLOW Run 530 (OVER START TIME): example of Symbol Prompting.

<sup>&</sup>lt;sup>3</sup> NETWORK DEMO-NET ACTIVATED ==> SN / DEMO-NET / 195 / MESSAGE: example of Information Message. See the subsection Message Types for explanations.

### **Line Commands: Mailbox - Messages and Requests**

### To perform a specific function, like symbol prompting or setting a condition

• Mark the Cmd field in the appropriate line with any character and press Enter.

The function you can perform depends on the message type.

For more information, see the subsection Message Types beginning on the following page.

### PF Keys: Mailbox - Messages and Requests

Key	Name	Function
PF7	Up	Scroll list of messages towards the top.
PF8	Down	Scroll list of messages towards the bottom.

# **Message Types**

The numbers below refer to the messages (1, 2, 3) in the figure Mailbox - Messages and Requests screen.

### 1. Waiting for Condition

A message of this type means that a scheduled network or job is waiting for a condition to be set.

#### To set the condition

• Mark the Cmd field of this line with any character. Press Enter.

This function is used to perform manual actions within a network.

### 2. Symbol Prompting

 $Symbol\ Prompting\ E60\text{-}FLOW\ Run\ 530\ (OVER\ START\ TIME)$ 

A message of this type means that a scheduled network or job is waiting for symbols to be entered or modified.

# To perform symbol prompting

1. Mark the Cmd field of this line with any character. Press Enter.

The Symbol Prompting screen appears.

#### Note:

Symbol prompting via mailbox is only used for automatic jobs started by schedule and cannot be used for jobs started interactively. Definition of the recipient mailbox for symbol prompting messages is described in the subsection Specifying Recipients for Network Messages in Section

Network Maintenance.

For further information on symbol prompting, see the subsection Symbol Prompting. in Section Symbols.

The message also displays the time until the next network start (in hours), or, if the network has exceeded its start time, displays the message OVER START TIME.

2. If this is the case, you are prompted for a new start time:

```
*** Entire Operations 3.2.1 ***
 11.07.00
                                                                13:32:53
              Mailbox - Messages and Requests
User BRY
Cmd Date Time Mailbox Description
_ 11.07 09:15 BRY NETWORK DEMO-NET ACTIVATED
==> SN / DEMO-NET / 191 / MESSAGE
        Owner EXAMPLE Network E60-FLOW Run 530
    The planned start time was in the past ==> 11.07.00 15:00 !TIME)
You can enter a new start time ==> 11.07.00 15:00 !rs)
    or cancel the activation with PF6
              PF6 Cancel
_ ! PF3 End
 Mark lines with any character for specific actions.
Command => _
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help End Save Up Down
```

- 3. Enter the new start time.
- 4. Press Enter to confirm the new start time. The new start time will be entered as the earliest start time in all active network jobs. Alternatively, you can cancel the activation by pressing PF6 (Cancel).

### 3. Information Messages

NETWORK DEMO-NET ACTIVATED ==> SN / DEMO-NET / 195 / MESSAGE

This is an information message.

# To delete the message from the list on the Mailbox - Messages and Requests screen

1. Mark the Cmd field of this line with any character. Press Enter.

A window opens.

2. Delete the message by entering **Y** and pressing Enter.

# **Origin of Mailbox Messages**

Messages can also be triggered by any other events detected by the Entire Operations Monitor:

- 1. If a condition is defined **dependent on mailbox**, the Entire Operations Monitor sends a request to the assigned mailbox. For further information, see the subsection Input Condition Depending on Mailbox in Section Job Maintenance.
- 2. If symbol replacement is defined as **controlled by a user routine**, and an error occurs, the request for symbol prompting is sent to the assigned mailbox. For further information, see the subsections Symbol Modification without Prompting in Section Symbols and Specifying Recipients for Network Messages in Section Network Maintenance.
- 3. Depending on the result of an end-of-job check, messages can be sent to Entire Operations users. Messages can also be sent to a particular mailbox. For further information, see the subsection Message Switching in Section End-of-Job Checking and Actions.

# **Group Mailbox**

All users linked to a group mailbox have access to the same range of messages. If a message is handled by any of these users, it no longer appears in anyone's mailbox.

### **SYSDBA Mailbox**

All generated messages and requests, for which no user is defined, are sent to the SYSDBA mailbox, which is accessible to the owner SYSDBA.

# **User Mailbox**

This kind of mailbox is available to only one user. Its name is identical to the user ID of the Entire Operations user. The user mailbox does not have to be defined or explicitly assigned to the user.

# **Clearing Mailboxes**

Mailbox entries are cleared in accordance with the maximum length of time specified in the Entire Operations default settings for long-term logging. For further information, see the section System Administrator Services, subsection Mailbox Maintenance in the Entire Operations Administration Documentation.

# Reporting

This section covers the following topics:

- Reporting Overview
- Job Logs
- Network and Job Accounting Data
- Network Description
- Network Job Flow Display
- Jobs Schedule
- Network Activation Summary
- Network Schedule Overview
- Batch Processing of Reports
- Cross-References

# **Reporting Overview**

The Entire Operations Reporting facility makes a number of different reports available. They include information at the job and event level, information on job network definitions and schedules and overviews of schedules and planned activations.

### To invoke the Reporting facility

• Select the Reports option on the Entire Operations Main Menu.

The Reporting Menu appears:

```
*** Entire Operations 3.2.1 ***
11.07.00
                                                                   16:13:42
Owner EXAMPLE
                          Reporting Menu
                                                           User ID BRY
     Reporting Menu
  1 Log - Terminated Jobs
  2 Log - Abended Jobs
  3 Log - Jobs not started
  4 Accounting Data
  5 Network Description (short)
  6 Network Description (detailed)
  7 Network Job Flow Display
  8 Schedule of Jobs
  9 Network Activation Summary
 10 Network Schedule Overview
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help
                End
                                                                     Menu
```

The available options on the menu are described in the following subsections.

Most reports are available not only online, but also in batch. For further information, see Batch Processing of Reports.

# Job Logs

The following options on the Reporting Menu offer information on jobs, which is extracted from the Entire Operations Log:

### • Log - Terminated Jobs

Displays a log of all jobs that terminated OK.

### • Log - Abended Jobs

Displays a log of all jobs that ended abnormally.

### • Log - Jobs not started

Displays a log of all jobs that were not started, jobs whose latest start time was exceeded, jobs waiting for input conditions or jobs for which a permanent error has occurred during activation or start.

The following applies to all job logs:

Only those networks are displayed for which the user has read access.

The user has read access, if:

- 1. the user has profile type **A** (Administrator);
- 2. the owner SYSDBA is currently assigned to the user;
- 3. the network owner can be found on the user's owner list;
- 4. access to the network has been explicitly granted to the user (see the subsection Authorizing Other Users to Access a Network in Section Network Maintenance).

### For example, to display the Log - Terminated Jobs

1. Type its option number in the Option field on the Reporting Menu. Press Enter.

The following window opens in which you can enter a date range for which to display the information (default is current date):

```
11.07.00 *** Entire Operations 3.2.1 *** 14:33
Owner EXAMPLE Reporting Menu User ID BRY
                                                                 14:33:31
     Reporting Menu
  1 Log - Terminated Jobs
  2 Log - Abended Jobs
  3 Log - Jobs not started
  4 Accounting Data
  5 Network Description (shor +-----+
  6 Network Description (deta!
  7 Network Job Flow Display ! Log - Terminated Jobs
  8 Schedule of Jobs
 8 Schedule of Jobs :
9 Network Activation Summar ! Start Date ===> 11.07.00
10 Network Schedule Overview ! Time ===> 00:00:00
                             !
! End Date ===> 11.07.00
! Time ===> 23:59:59
Command => 1_____
                             _! Enter
                                                        PF3 End
Enter-PF1---PF2---PF3---PF4---P +------+ 12---
     Help End
```

2. Enter the required date range. Press Enter.

The following window opens:

```
02.08.00 *** Entire Operations 3.2.1 *** 14:33:31
Owner EXAMPLE Reporting Menu User ID BRY
     Reporting Menu
  1 Log - Terminated J!
  2 Log - Abended Jobs ! Log - Terminated Jobs
  3 Log - Jobs not sta!
  4 Accounting Data ! Owner ==> _____ * Select Blank All !
  5 Network Descriptio ! Network ==> _____ * Select Blank All !
  6 Network Descriptio!
  7 Network Job Flow D ! PF3 End
  8 Schedule of Jobs +-----
 9 Network Activation Summar! Start Date ===> 02.08.00
10 Network Schedule Overview! Time ===> 00:00:00
                           !
                           ! End Date ===> 02.08.00
! Time ===> 23:59:59
Command => 1
                           _! Enter
                                                    PF3 End
Enter-PF1---PF2---PF3---PF4---P +------+ 12---
    Help
               End
```

3. Enter owner and network for which to display information. You can enter selection criteria with an asterisk \*. Press Enter.

The following screen appears:

Owner	Network	Job	Run	Date	Time	Message
SN	BS2-EX-2	SYM-1	109	21.07.00	00:01	Ended ok
EXAMPLE	E60-FLOW	JOB-01	997	21.07.00	13:15	Ended ok
EXAMPLE	E60-FLOW	JOB-012	997	21.07.00	13:28	Ended ok
EXAMPLE	E60-FLOW	JOB-013	997	21.07.00	13:31	Ended ok
EXAMPLE	E60-FLOW	JOB-014	997	21.07.00	13:44	Ended ok
EXAMPLE	E60-FLOW	JOB-019	997	21.07.00	14:25	Ended ok
EXAMPLE	E60-FLOW	JOB-02	997	21.07.00	14:27	Ended ok
EXAMPLE	E60-FLOW	JOB-04	997	21.07.00	14:39	Ended ok
EXAMPLE	E60-FLOW	JOB-06	997	21.07.00	14:41	Ended ok

The display of Log - Abended Jobs and of Log - Jobs not started also has the same format.

### **Column Headings: Log Report**

Meaning of column headings:

Column	Description
Owner	Owner to whom the network belongs.
Network	Network to which the job belongs.
Job	Job name as defined to Entire Operations.
Date	Date of this event.
Time	Time of event.
Message	Message text.

- 4. Press PF11 (Right) to scroll right and display the full message text. Press PF10 (Left) to scroll back to the left.

  - Press Enter to scroll down and display more log entries, if there are any.
- 5. Press PF3 (End) to return to the Reporting Menu.

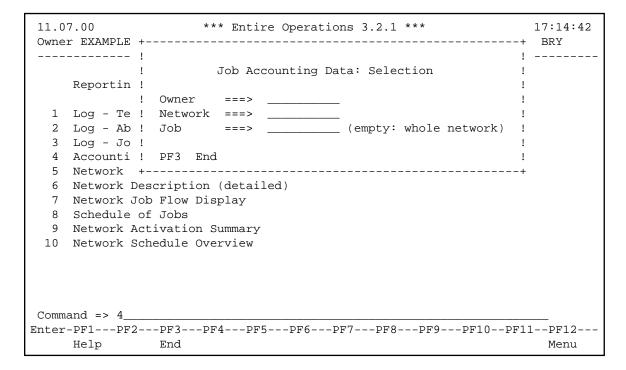
# **Network and Job Accounting Data**

The option Accounting Data on the Reporting Menu offers information on job elapsed times and CPU times of previous network executions.



1. Type its option number in the Option field on the Reporting Menu. Press Enter.

A window opens in which you can enter the owner, network and job for which to display information:



2. Enter the required Owner, Network and Job names. Press Enter.

Another window opens on the bottom half of the screen:

```
11.07.00
               *** Entire Operations 3.2.1 ***
                                               17:14:42
Owner EXAMPLE +------ BRY
  -----!
                Job Accounting Data: Selection
         !
   Reportin!
       ! Owner ===> EXAMPLE
 1 Log - Te ! Network ===> E60-FLOW___
 2 Log - Ab ! Job ===> _____ (empty: whole network) !
 3 Log - Jo!
 4 Accounti ! PF3 End
 5 Network +-----+
 6 Network Description (detailed)
   Network +-----+
 8 Schedule!
 9 Network ! Owner EXAMPLE Network E60-FLOW
 10 Network ! Date / Run Number Selection
         !
         ! From Date 01.07.96 00:00 to 11.07.00 17:14 !
         ! From Run 1____ to 99999
         - 1
Command \Rightarrow 4_ ! PF3 End
Enter-PF1---PF +-----+ --PF12--
```

### Field Descriptions: Date / Run Number Selection

The input fields of the Date / Run Number Selection window are described in the following table:

Field	Description
From Date	Enter the date and time from which to display accounting data.
to	Enter the date and time until which to display accounting data.
From Run to	Enter the range of run numbers for which to display accounting data.

3. Enter the required dates, times and run ranges. Press Enter.

The following screen appears with the job accounting data:

11.07.00 *** Entire Operations 3.2.1 *** 17:17:10 Owner EXAMPLE Job Accounting Data Network E60-FLOW						
Job	Run JobId	Date	Start	Stop Elar	osed min CPU	Time sec
JOB-01	1234 2007			13:15:06		0.05
JOB-019	1234 2012		13:15:27	13:17:27	2.00	0.02
(Network)	1234		13:14:06	13:17:27	3.35	0.07
JOB-01	1276 2332	11.07.00	13:01:08	13:02:08	1.00	0.05
JOB-012	1276 2336		13:02:28	13:04:28	2.00	0.03
JOB-019	1276 2337		13:02:30	13:04:30	2.00	0.03
JOB-013	1276 2340		13:04:44	13:06:44	2.00	0.03
JOB-014	1276 2349		13:07:00	13:19:01	12.01	0.10
JOB-015	1276		13:19:06	13:19:06		
JOB-02	1276 2394		13:19:10	13:20:10	1.00	0.05
JOB-03	1276		13:20:36	13:20:37	0.01	
JOB-04	1276 2410		13:20:39	13:22:40	2.01	0.03
JOB-05	1276		13:23:00	13:23:00		
Averages from 10.07.00 13:14 to 11.07.00 13:23 are 2.09 0.03						
Enter-PF1	PF2PF3	-PF4PF5-	PF6PF	7PF8PF	9PF10PF	11PF12
	End	Net	Up	Down		

### **Column Headings: Job Accounting Data**

The following table explains the column headings for the data listed on the Network Maintenance screen:

Column	Description
Job	Job name as defined to Entire Operations.
Run	Run number of the job
JobId	Job identifier from operating system.
Date	Date on which job started.
Start	Time at which job started.
Stop	Time at which job ended.
Elapsed min	Elapsed time in minutes.
CPU Time sec	CPU time in seconds.
Averages from to are	Average values of Elapsed min and CPU Time sec.

The (Network) records in the Job column are network summary records. These contain the start time of the network's first job and the stop time of its last job, as well as its cumulative CPU time in seconds and its total elapsed time in minutes.

- 4. Press PF8 (Down) to scroll data forwards and PF7 (Up) to scroll backwards.
- 5. Press PF3 (End) to return to the Reporting Menu.

#### Note:

Running times and CPU times of dummy jobs are not taken account of in this evalutation.

# **Network Description**

The two Network Description options on the Reporting Menu allow you to display network and job online documentation.

### • Network Description (short)

Displays information on networks and jobs as defined on the master data base, including scheduling information, prerequisites and end-of-job checking and actions.

### • Network Description (detailed)

Displays the same information as the 'short' version, but includes all prose descriptions defined at the network, job or event level using the Editor facility.

### For example, to display the Network Description (short)

1. Type its option number in the Option field on the Reporting Menu. Press Enter.

A window opens in which you can enter the owner and the network for which to display information:

```
11.07.00 *** Entire Operations 3.2.1 *** 17:21
Owner EXAMPLE Reporting Menu User ID BRY
                                                           17:21:06
     Reporting Menu
  1 Log - Terminated J !
  2 Log - Abended Jobs ! Network Description (short)
  3 Log - Jobs not sta!
  4 Accounting Data ! Owner ==> EXAMPLE___ * Select Blank All !
  5 Network Descriptio ! Network ==> *_____ * Select Blank All !
  6 Network Descriptio!
  7 Network Job Flow D ! PF3 End
  8 Schedule of Jobs +-----
  9 Network Activation Summary
 10 Network Schedule Overview
Command => 5
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
         End
    Help
```

2. Enter the owner and network in the selection window. Press Enter.

### **Field Descriptions: Network Description**

Meaning of the input fields:

Field	Description
Owner	Display networks belonging to this owner. Press Enter to select all owners. Enter an asterisk * and press Enter to display a selection list of owner names, or enter XX* and press Enter to list owner names with prefix XX.
Network	Network name. Press Enter to select all networks. Enter an asterisk * and press Enter to display a selection list of network names, or enter XX* and press Enter to list network names with prefix XX.

A window opens at the bottom of the screen:

3. If you enter **Y** and press Enter, output is printed.
If you enter **N** and press Enter, the Network Description appears on the screen.

The network information appears on your screen or is printed in the following format:

```
11.07.00
                           Entire Operations 3.2.1
                                                                      17:23:17
Network TESTNET
                            Network Documentation
                                                             Owner GFR
 Job
Description
 Execution Node: 148
 Schedule Times
                            Send Late Message to
 Earliest Start: 09:15:00
 Latest Start : 11:00:00
Deadline : 12:30:00
 ... Job Description on the following Pages
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12--
```

The information reflects the network parameters as defined in the Network Maintenance facility.

4. Press Enter to display information on the first job in the network.

Job information is presented in a format similar to the following:

```
11.07.00
                         Entire Operations 3.2.1
                                                                17:23:43
Network TESTNET
                         Network Documentation
                                                       Owner GFR
Job
        HANS
Job: HANS
              Type JOB PDS Description:
Location : PDS
DSN/Library: SN.GFR.SOURCE
                                                      Member: HANS
          : 148
Node
Schedule Parameters
                        Send Late Message To
Earliest Start: 09:15:00
Latest Start : 11:00:00
           : 12:30:00
Deadline
Elapsed Time :
Input Conditions
Enter-PF1---PF3---PF3---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
                                                                                         End
                                           Menu
```

The information reflects the job parameters as defined in the Job Maintenance facility.

5. Press Enter to display the next page of information.

You can display all job definitions for the specified network. If you selected the Network Description (detailed) option, the long prose description is also displayed.

6. Press PF3 (End) to return to the Reporting Menu.

# **Network Job Flow Display**

The Network Job Flow Display option provides a short overview of the job flow within a network. The output can be sent to the screen or printed.

### To invoke the Network Job Flow Display

1. Type its option number in the Option field on the Reporting Menu. Press Enter.

A window opens in which you can enter the owner and the network for which to display information:

```
08.02.00 *** Entire Operations 3.2.1 *** 17:20
Owner REQUEST Reporting Menu User ID SN
08.02.00
                                                            17:20:05
    Reporting Menu
  1 Log - Termina!
  2 Log - Abended! Network Job Flow Display
  3 Log - Jobs no !
  4 Accounting Da ! Owner ==> *_____ * Select or Blank for All
  5 Network Descr! Network ==> *____ * Select or Blank for All
  6 Network Descr !
  7 Network Job F ! PF3 End
    Schedule of J +-----
  9 Network Start Summary
 10 Network Schedule Overview
Command \Rightarrow 7___
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help End
```

The selection fields are preset with '\*'. This causes an object selection to be displayed after Enter is displayed. If all objects are to be selected, the corresponding selection field must be deleted.

The contents of the output fields result in the following:

Owner	Network	Selection
empty	empty	All owners und networks are displayed.
filled	empty	All networks for the selected owner are displayed.
filled	*	Network selection for the selected owner is invoked.

Network selection is only executed, if an owner has already been selected.

2. Enter the Owner and Network in the selection window. Press Enter.

A window opens at the bottom of the screen in which you are asked Send Output to Printer?

3. If you enter **Y** and press Enter, output is printed on printer assigned to Workfile 1. If you enter **N** and press Enter, the Job Flow screen appears, for example:

```
MORE
11.07.00
                          Entire Operations 3.2.1
                                                                   17:16:44
               Job Flow of Network E60-FLOW Owner EXAMPLE
                                                                  Page
              by Condition
                                    from/to Job
     Job
                                                   Owner
                                                                Network
     JOB-01
(1)
              E60-J0B1-0
       Ι
       +----> E60-JOB1-O -----> (11) JOB-019
(2)
     JOB-012
      I
              E60-J012-O
(3)
     JOB-013
              E60-J013-O
      I
(4)
     JOB-014
       I
              E60-J014-O
(5)
     JOB-015
       Ι
               E60-J015-O
       +<---- E60-J019-O <----- (11) JOB-019
(6)
     JOB-02
              E60-J0B2-01
      I
(7)
     JOB-03
```

#### Notes on the above list:

- Each job is identified by a sequence number.
- Direct successor jobs appear in vertical order.
- If the direct sequence is interrupted, a horizontal line is printed.
- If a successor cannot be shown indirectly, an arrow --> points from the left.
- If a predecessor cannot be shown directly, an arrow <-- points from the right.
- The linking conditions are shown on the right-hand side of the screen.
- Input conditions dependent on files and dependent on job variables (BS2000) are displayed.
- 4. Press Enter to display the next screen, if there is more data.
- 5. Press PF3 (End) to return to the Reporting Menu.

### **Jobs Schedule**

The Jobs Schedule option on the Reporting Menu displays a jobs schedule for a specific date range.

### To invoke the Jobs Schedule

1. Type its option number in the Option field on the Reporting Menu. Press Enter.

A window opens in which you can specify a date range:

```
11.07.00 *** Entire Operations 3.2.1 *** 12:30:56
Owner EXAMPLE Reporting Menu User ID BRY
    Reporting Menu
  1 Log - Terminated Jobs
  2 Log - Abended Jobs
  3 Log - Jobs not started
  4 Accounting Data
  5 Network Description (short)
  6 Network Description (detailed)
  7 Network Job Flow Display +-----
  8 Schedule of Jobs
  9 Network Activation Summar! Schedule of Jobs
 10 Network Schedule Overview!
                              Start Date ===> 11.07.00
                         ! End Date ===> 11.07.00
                         !
Command => 8____
                         _! Enter
                                               PF3 End!
Enter-PF1---PF2---PF3---PF4---P +------+ 12---
    Help End
```

2. Enter the Start Date and End Date required and press Enter.

The following window opens:

```
11.07.00 *** Entire Operations 3.2.1 *** 12:30:56
Owner EXAMPLE Reporting Menu User ID BRY
    Reporting Menu
  1 Log - Terminated J!
  2 Log - Abended Jobs ! Schedule of Jobs
  3 Log - Jobs not sta!
  4 Accounting Data ! Owner ==> EXAMPLE___ * Select Blank All !
  5 Network Descriptio ! Network ==> _____ * Select Blank All !
  6 Network Descriptio!
  7 Network Job Flow D ! PF3 End
  8 Schedule of Jobs +-----+
  9 Network Activation Summar! Schedule of Jobs
 10 Network Schedule Overview!
                               Start Date ===> 11.07.00
                          !
                          !
                              End Date ===> 11.07.00
Command => 8
                         _! Enter
                                                PF3 End
Enter-PF1---PF2---PF3---PF4---P +----------------+ 12---
    Help End
```

3. Enter owner and network for which to display information. You can enter selection criteria with an asterisk \*. Press Enter.

A window opens at the bottom of the screen:

4. If you enter **Y** and press Enter, output is printed.

If you enter N and press Enter, the schedule appears on the screen.

A schedule for the given range appears on your screen or is printed in the following format:

11.07.00	*** Entire Operations 3.2.1 *** 17:33:52 Production Plan 11.07.00 thru 11.07.00							
11.07.00 Owner	Network	Job	Description	Start	Elapsed			
ASF	ASF-COPY	JOB-01 LMS-JOB		00:00				
EXAMPLE	E40-REC-01	E40-J02 E40-J03	Run is always okay ABEND=SE37 1st run Run only after recovery Reset all conditions					
SN	A-1	HUGO-1 HUGO-2 IMP-TEST		05:00 00:00				
	DEMO-NET	JOB1	firST-JOB	09:15				
Enter-PF1-	PF2PF3 End	PF4PF	5PF6PF7PF8PF9- Down	PF10-	-PF11PF12 Menu			

- 5. Press PF8 (Down) or Enter to scroll down the schedule.
- 6. Press PF3 (End) to return to the Reporting Menu.

### **Column Headings: Production Plan**

Meaning of column headings:

Field	Description
Owner	Owner name of job.
Network	Network name of job.
Job	Job name.
Description	Short description of job as defined in job definition.
Start	Scheduled starting time of job.
Elapsed	Estimated running time of job.

# **Network Activation Summary**

This function produces a status report of all network activations for a given day, regardless of whether they:

- are waiting for prerequisite resources;
- have already been executed;
- are currently being executed;
- have already been completed.

### To display the Network Activation Summary

1. Type its option number in the Option field on the Reporting Menu. Press Enter.

The following windows open:

```
11.07.00
Owner EXAMPLE
                      Network Activation Summary
    Reporting Menu!
                 +-----
  1 Log - Terminated Jobs
  2 Log - Abended Jobs
  3 Log - Jobs not started
  4 Accounting Data
  5 Network Description (short)
  6 Network Description (detailed)
  7 Network Job Flo +-----+
  8 Schedule of Job!
 9 Network Activat! Please enter the Date for the Report
 10 Network Schedul!
                               ===> 11.07.00
                 ! PF3 End
Command => 9_
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
             End
    Help
                                                         Menu
```

2. Enter the date for which to compile the summary. This can be any date in the past, present or future. Press Enter.

The following window opens:

```
11.07.00
Owner EXAMPLE
                                Network Activation Summary
     Reporting Menu!
  1 Log - Terminated J !
  2 Log - Abended Jobs ! Network Activation Summary 3 Log - Jobs not sta !
  4 Accounting Data ! Owner ==> _____ * Select Blank All ! 5 Network Descriptio ! Network ==> ____ * Select Blank All !
  6 Network Descriptio!
  7 Network Job Flo +-! PF3 End
  8 Schedule of Job! +------
  9 Network Activat! Please enter the Date for the Report
 10 Network Schedul!
                                    ===> 11.07.00
                    !
                   ! PF3 End
Command => 9___
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
     Help End
```

3. Enter owner and network for which to display information. You can enter selection criteria with an asterisk \*. Press Enter.

A window opens at the bottom of the screen in which you are asked Send Output to Printer?:

4. If you enter **Y** and press Enter, output is printed on the printer assigned to Workfile 1. If you enter **N** and press Enter, the Network Activation Summary screen appears, for example:

```
11.07.00
                        Entire Operations 3.2.1
                                                                 15:10:15
            Network Activation Summary for 11.07.00
                                                                Page 1
EXAMPLE
         E40-REC-01
 (1031) 10.07 00:00 Activation Net 11.07 16:00 Symbol Table E40-ST activated
        E50-USRT
EXAMPLE
 ______
 ( 750) 11.07 12:00
                            Network Activation
       11.07 11:50 E50-J3-EOJ JCL Load - No lines generated
 ( 751) 11.07 13:00
                            Network Activation
       11.07 12:50 E50-J3-EOJ JCL Load - No lines generated
 ( 752) 11.07 14:00
                            Network Activation
      11.07 13:50 E50-J3-EOJ JCL Load - No lines generated
EXAMPLE E60-FLOW
MORE
```

- 5. Press Enter to display the next screen, if there is more data.
- 6. Press PF3 (End) to return to the Reporting Menu.>

### Note:

For networks that terminate error-free, only those jobs are displayed that have no successors in the same network.

</blockquote

# **API Routines**

This section covers the following topics:

- Application Programming Interface
- Using the API Routines
- Invoking the API Routines
- Inquire Network and Job Status, Symbol Table
- Accessing Calendars and Schedules
- Accessing Entire Operations Conditions
- Accessing Entire Operations Resources
- Accessing Entire Operations Symbols
- Activation of Job Networks or Jobs
- Writing Messages to the Entire Operations Log
- Expanding Message Texts
- Importing Existing Jobs into the Active Queue
- Display of Long Texts for Symbol Prompting
- Generating Sysout File Names for BS2000/OSD
- Checking Use of BS2000 User IDs
- Job Schedule Inquiry and Modification
- Sub-networks: Inquire Calling Job or Called Network
- Starting and Stopping the Monitor Activity Log
- Entire Operations Version Information
- Example of Use of API-Routines

# **Application Programming Interface**

The Entire Operations library contains an Application Programming Interface (API). This is a set of routines that you can invoke from any other Natural application in order to access Entire Operations' internal data.

You can invoke these routines simply by using a Natural CALLNAT statement. The CALLNAT statement is described in detail in the **Natural Reference Documentation**.

In an appropriate location after the CALLNAT statement, you must code an END TRANSACTION statement to close Entire Operations' transaction logic. No END TRANSACTION statement is issued from within Entire Operations' APIs.

You can change the parameter names, but not the parameter format, number and order.

The Application Programming Interface provides the following functions:

Function	Description
NOPUST1N	Network and job status inquiry, symbol table inquiry
NOPUCS1N	Access to calendars and schedules
NOPUCN2N	Access to conditions
NOPURS1N	Access to resources
NOPUSY4N	Access to symbols
NOPUAC4N	Activation of job networks or jobs
NOPULW7N	Writing to Entire Operations log
NOPUMT1N	Expanding message texts
NOPUJI3N	Import of existing jobs to the Entire Operations active queue
NOPUSP1N	Display of long texts for symbol prompting
NOPFB2-N	Generation of sysout file names in BS2000
NOPUJS1N	Inquiring and modifying job schedules
NOPUSN1N	Sub-networks: inquiring calling job or network that is called
NOPMLA1N	Start and stop monitor activity log
NOPUVI2N	Entire Operations version information

# **Using the API Routines**

The Entire Operations API routines are delivered as Natural subprograms within the Entire Operations library.

The naming convention is:

NOPUxxxy

where NOPU means Entire Operations User API Routine, xxx is the program name (sometimes containing a version number) and y is the program type (N - subprogram, P - program).

To use the Entire Operations API routines, define your SYSEOR library as Steplib.

They can be copied to the user application, or to a Natural SYSTEM library to make them available to all Entire Operations users. They can be made available by assigning their current library as Natural STEPLIB.

If you do not want to define SYSEOR as STEPLIB, then you must copy the following modules as well: NOPRNI-N, NOPXGM1N, NOP0320N, NOPRNT-N, NOPNMC-N, NOPXDM-N, NOPRNL-N.

#### Note:

You cannot change any routine names, since there are dependencies between them. The routines delivered with the previous Entire Operations version are still supported. Convert their calls to the

newer version when you modify the calling programs. For example, beginning with Entire Operations version 1.4.1, use the network activation subprogram NOPUAC4N instead of the previously valid program NOPUAC3N. Change all CALLNAT NOPUAC3N calls to CALLNAT NOPUAC4N. The complete range of functions is available only with the latest version.

## **Invoking the API Routines**

First, the user application must establish a link to the Entire Operations system files. This can be done in any of the following ways:

If the user application startup is extended with either

```
NTFILE ID=216,DBID=<eor-sysf1-dbid>,FNR=<eor-sysf1-fnr>
NTFILE ID=173,DBID=<eor-sysf2-dbid>,FNR=<eor-sysf2-fnr> (in parameter module)
```

or

```
LFILE (216, <eor-sysf1-dbid>, <eor-sysf1-fnr>)
LFILE (173, <eor-sysf2-dbid>, <eor-sysf2-fnr>) (as dynamic parameter)
```

the link is already established.

# **Inquire Network and Job Status, Symbol Table**

You can inquire the current status of an active job network or of a single active job by using the following statement in your Natural application:

```
CALLNAT 'NOPUST1N'
FUNCTION RC OWNER NETWORK JOB RUN SYMBOL-TABLE
```

Meaning of the parameters:

Parameter	Format	Usag	e			
FUNCTION	(A01)	(in)	Functi	Function code:		
			A	Get next active run number (in numerical order) beginning with a starting run number.		
			R	Get last run number (in chronological order).		
			S	Inquire status.		
			N	Inquire status of next job (alphabetically).		
			Y	Get name of symbol table from master network or job definition.		
RC	(N03)	(out)	Return code:			
			0	Function ok.		
			1	Network or job not found, or run number does not exist.		

			20 Waiting for symbol prompting, etc.		
			21	Waiting for activation.	
			25	Waiting for prerequisite.	
			26	Job is in HOLD.	
			41	(At least one job) executing.	
			65	(All jobs) terminated ok.	
			66	(At least one job) terminated not ok.	
			69	(At least one) permanent error.	
			93	Waiting for deactivation.	
RC (cont.)			101	Invalid function code.	
			102	Parameters missing.	
			999	Status not defined.	
OWNER	(A10)	(in)	Owner of network.		
NETWORK	(A10)	(in)	Job ne	etwork	
JOB	(A10)	(in)	Job. It	f left blank, inquiry is for whole network.	
RUN	(P13)	(in)	Function <b>A</b> : Starting run number (can be 0). Function <b>S</b> : Run number to be checked.		
		(out)	Function <b>A</b> : Next active run number (in numerical order). Function <b>R</b> : Last run number of the network in chronological order.		
SYMBOL-TABLE	(A10)	(out)	Name of the defined symbol table. Function <b>Y</b> , network: standard symbol table. When status inquiry is for whole network, first symbol table found is returned.		

### **Inquire Status of Whole Active Network**

Use function **S**. Leave the JOB parameter blank.

### Inquire Status of all Jobs of an Active Network Individually

Use function N. Delete the JOB parameter. Then invoke this API in a REPEAT-loop until you get RC = 1 (network end).

Each call returns the status of a job. The name is contained in JOB. Do not change the content of JOB, because it is used as starting value for the next call.

### **Inquire Symbol Table Used**

The symbol table used is always returned for active networks and jobs.

For master networks and jobs, you can use the function Y.

#### **Notes:**

- 1. The status inquiry functions independently of Monitor activity, because it uses data base entries.
- 2. For a whole network inquiry (with function **S**), the stati of the individual jobs are linked with logical AND. In the worst case, if at least one job has failed, the status **failed** is returned for the whole network.
- 3. An active network is considered to have **terminated ok** only if all its active jobs have terminated ok.
- 4. The status inquiry is only possible as long as the network or job involved has not been deactivated.
- 5. To obtain all active run numbers of a network, proceed as follows:
  - use function A
  - begin with starting run number 0
  - call the API
  - terminate when RC does not equal 0
  - keep result as next starting run number and continue with 3.

# **Accessing Calendars and Schedules**

You can access dates within calendars or schedules using the following statement in your Natural application:

CALLNAT 'NOPUCS1N' FUNCTION RC OBJECT-TYPE OWNER OBJECT DATE-A8

Meaning of the parameters:

Parameter	Format	Usage	е				
FUNCTION	(A01)	(in)	Func	tion code:			
			C	Determine the calendar used.			
			D	Determine the schedule used.			
			N	Determine the next set date, from a starting date.			
			P	Determine the previous set date, from a starting date.			
			R	Reset a date. Date will be removed from calendar or schedule.			
			S	Set a date. Date will be added to calendar or schedule.			
			Т	Test a date. If date exists within calendar or schedule: <b>RC</b> contains 0, otherwise 1.			
RC	(N03)	(out)	Retu	rn code:			
			0	Function ok; or: date is set.			
			1	Date is not set.			
			2	Object not found.			
			101	Invalid function code.			
			102	Parameter(s) missing.			
			103	Invalid parameter combination.			
			104	Invalid object type.			
			105	Invalid date.			
			106	Table of explicit dates full.			
OBJECT-TYPE	(A01)	(in)	Obje	ect type:			
			C	Calendar			
			H	Schedule history			
			S	Schedule			
OWNER	(A10)	(in)	Owner of object.				
OBJECT	(A10)	(in)	(in) Name of object: calendar name, schedule name (=networ				
		(aus)	(aus) Funktion codes <b>C</b> and <b>D</b> : name of determined object.				
DATE-A8	(A08)	(in)	in) Date in format: YYYYMMDD				
		(aus)	Func	tion codes N and P: the date found.			

### **Notes:**

- 1. Only function **T** is allowed for object type **H** (schedule history)
- 2. DATE-D should be used for calls from Natural programs. DATE-A8 must be empty in this case.
- 3. Schedule history is usually available for the current year and previous two years.
- 4. Schedule dates can be set for the current year and the next year.

- 5. The functions **N** and **P** work for a range of years. Limitations:
  - For schedules, only the current and the previous year are available.
  - Calendars must be defined for all years in which a search is to be performed.

### **Example for Using NOPUCS1N**

The program calculates the first Monday of each month in 1998 and subsequently enters the network REQUEST/BFA001 for the calculated days in the schedule.

```
* BFA001
* DETECT FIRST MONDAY IN MONTHS
DEFINE DATA
LOCAL
1 #YYYYMMDD (A8)
1 REDEFINE #YYYYMMDD
2 #YYYY (N4)
2 #MM
         (N2)
2 #DD
         (N2)
         (D)
1 #D1
1 #WD
         (A1)
1 #OWNER (A10) INIT <'REQUEST'> /* Owner
1 #OBJECT (A10) INIT <'BFA001'> /* Network < -----
1 #RC3
         (N3)
END-DEFINE
#YYYY := 1998
                                /* Year < -----
F1. FOR \#MM = 01 TO 12
RESET #DD
R1. REPEAT
 ADD 1 TO #DD
 MOVE EDITED #YYYYMMDD TO #D1 (EM=YYYYMMDD)
 MOVE EDITED #D1 (EM=O) TO #WD
 WRITE #D1 (EM=YYYYMMDD) #WD
 UNTIL #WD = '1' /* R1.
END-REPEAT /* R1.
WRITE #D1 (EM=YYYYMMDD' 'N(10))
* CALL NOP SCHEDULE API TO SET THESE DAYS
CALLNAT 'NOPUCS1N'
 'S' #RC3 'S' #OWNER #OBJECT #YYYYMMDD
WRITE #YYYYMMDD #RC3
          /* F1.
END-FOR
END TRANSACTION
END
```

# **Accessing Entire Operations Conditions**

You can handle conditions using the following statement in your Natural application:

```
CALLNAT 'NOPUCN2N'
FUNCTION RC OWNER NETWORK CONDITION RUN TIME-FROM TIME-TO
```

### Meaning of the parameters:

Parameter	Format	Usag	e				
FUNCTION	(A01)	(in)	Function	code:			
			R	Reset a condition.			
			S	Set a condition.			
			Т	Test a condition.			
RC	(N03)	(out)	Return co	ode:			
			0	Function ok.			
			1	Condition not found.			
			2	Time or run required for reset.			
			101	Invalid function code.			
			102	Condition name missing.			
			103	Invalid date.			
			104	Network name missing.			
OWNER	(A10)	(in)	Owner of	the job network / condition.			
NETWORK	(A10)	(in)	Job netwo	Job network.			
CONDITION	(A20)	(in)	Condition	n name.			
RUN	(P13)		Correspo	nding run number.			
		(in)	Absolute	condition: -1			
		(out)	Function <b>T</b> and field empty: Highest run number found is returned				
TIME-FROM	(T)		Starting time of condition.				
		(in)	· /				
		(out)					
TIME-TO	(T)	(in)	End time of condition.				

# **Description of the Function Codes**

Meaning of the function codes:

Code	Description
R	Reset a condition. The date or the the run number must be specified.  If a <b>run number</b> is specified, the date is not considered.  If a <b>date</b> is specified, the deletion of several conditions with the same date, but different run numbers might occur.
S	Set a condition. The date and / or run number are optional.
Т	Test a condition.  If a run number is specified, the time frame is not considered.  If no time frame and no run number are specified, each condition with the specified name matches.  If no run number is specified, the last run number for the time frame up to the current time is returned.  If no time frame was given, the time belonging to this run number is returned in TIME-FROM.

# **Accessing Entire Operations Resources**

You can handle resources with the following statement:

CALLNAT 'NOPURS1N'
FUNCTION RC NODE RESOURCE TYPE INIT-QTY QTY

Meaning of the parameters:

Parameter	Format	Usage			
FUNCTION	(A01)	(in)	Function code:		
			A	Add a resource.	
			D	Delete a resource.	
			M	Modify a resource.	
			T	Test a resource.	
RC	(N03)	(out)	Retur	n code:	
			0	Function ok; resource found.	
			1	Resource not found.	
			2	Resource already exists.	
			3	Inconsistent values.	
			101	Invalid function code.	
			102	Resource name missing.	
NODE	(N03)	(in)	Not used; use constant with value=0.		
RESOURCE	(A20)	(in)	Name	e of the resource.	
TYPE	(A01)	(in)	Туре	of resource (only for FUNCTION=0)	
			N	Not quantitative.	
			R	Quantitative, re-useable.	
			U	Quantitative, not re-useable.	
INIT-QTY	(P7.2)	(in/out)	Total quantity.		
QTY	(P7.2)	(in/out)	Currently used quantity.		

### **Description of the Function Codes**

Meaning of the function codes:

Code	Description
A	Adds a new resource definition. You must give values for TYPE, INIT-QTY and QTY.
D	Deletes a resource definition.
M	Used to modify the values INIT-QTY and QTY.
Т	Returns the current values of INIT-QTY and QTY.

### Note:

Before using M for modifications, you should use T to read the present values (unless you want to enter an absolute value).

# **Accessing Entire Operations Symbols**

You can handle symbols in symbol tables using the following statement:

CALLNAT 'NOPUSY4N'
FUNCTION RC OWNER NETWORK RUN SYMBOL-TABLE SYMBOL-NAME FORMAT
VALUE USER TIME

### Meaning of the parameters:

Parameter	Format	Usag	ge		
FUNCTION	(A01)	(in)	Function code:		
			D	Delete one multiple value.	
			M	Add one multiple value.	
			N	Test next symbol.	
			P	Test next symbol to be prompted.	
			R	Reset a symbol.	
			S	Set (add or modify) a symbol.	
			T	Test existence of a symbol and inquire its value.	
RC	(N03)	(out)	Return o	code:	
			0	Function ok; symbol found.	
			1	Symbol not found.	
			2	Invalid numeric value.	
			3	Invalid format.	
			4	Format modification attempted.	
			5	Multiple table full.	
			6	Value missing.	
			7	Value not found.	
			10	Invalid value by user exit.	
			11	User exit not found.	
			12	Access to user exit not allowed (Natural Security).	
			20	Ok; is a multiple value.	
			30	Ok; the master symbol was also modified.	
			101	Invalid function code.	
			102	Parameter missing.	
OWNER	(A10)	(in)	Owner of	f the symbol table.	

NETWORK	(A10)	(in)	Network	Network (for active symbol table only).		
RUN	(P13)	(in)	Run (for active symbol table only).			
SYMBOL-TABLE	(A10)	(in)	The symb	The symbol table.		
SYMBOL-NAME	(A20)	(in)	The symb	The symbol name.		
	-	(out)	(for funct	(for function codes <b>N</b> and <b>P</b> )		
FORMAT	(A01)	(in)	Symbol format.			
	-	(out)	(for function codes N, P and T)			
	-		" " or A	Alphanumeric. No case conversion.		
	-		D	Date in the format: YYYYMMDD		
			L	Alphanumeric. Conversion to lower case.		
	-		N	Numeric.		
	-		U	Alphanumeric. Conversion to upper case.		
VALUE	(A80)	(in)	Symbol v	value.		
	-	(out)	t) (for function codes N, P and T)			
USER	(A08)	(out)	User who made the last modification.			
TIME	(T)	(out)	Time of the last modification.			

# **Description of the Function Codes**

Meaning of the function codes:

Code	Description						
D	<b>Delete</b> one multiple value. Resets one value in a multiple-value symbol. If this is the last symbol value, the whole symbol is removed from the table.						
M	Add one multiple value. Sets one more value in a multiple-value symbol.						
N	<b>Test</b> next symbol. Tries to find the next symbol (in alphabetic order) from the specified symbol. The given name is overwritten by the name found. The other fields are returned as in function <b>T</b> . To find the first symbol of a symbol table, the symbol name can be omitted. If the end of the symbol table is reached, code <b>1</b> is returned.						
P	<b>Test</b> next symbol to be prompted. Finds the next symbol in alphabetical order to be prompted for the current network/job run. Otherwise works like function code <b>N</b> .						
R	<b>Reset</b> a symbol. The symbol is removed from the symbol table.						
S	<b>Set</b> a symbol. If the symbol does not exist in the symbol table, it is inserted; if it already exists, it is overwritten.						
Т	<b>Test</b> a symbol. If the symbol is not found, code <b>1</b> is returned. If the symbol exists, its format and value are returned. The fields User and Time contain the user and time stamp of the last modification.						

#### **Notes:**

- 1. To access a **master** symbol table, the fields NETWORK and RUN must be empty. To access an **active** symbol table, the fields NETWORK and RUN must be supplied by the caller.
- 2. If a plausibility check user exit is defined for the symbol, it is invoked from this API routine, too. Make sure that the user exit is accessible in the calling environment. The library containing the user exit must be defined as STEPLIB for the executing environment of these APIs. A symbol value is **rejected** if the exit returns **not ok** (RC=10) or if the exit is missing (RC=11).

### **Sequential Reading in a Symbol Table**

To read symbols sequentially from a master or active symbol table, proceed as follows:

- 1. Set function to N.
- 2. If you want to start reading at the start of the table, reset SYMBOL-NAME first; otherwise put a start name into SYMBOL-NAME.
- 3. Call the user routine in a REPEAT loop; leave it, if RC is not 0 and not 20.
- 4. Leave SYMBOL-NAME unchanged as start value for the next call.
- 5. Reset SYMBOL-VALUE before the next call, if RC=0.
- 6. Do not reset SYMBOL-VALUE, if RC=20.

#### **Example of Sequential Symbol Table Reading:**

```
MOVE 'N' TO FUNCTION
RESET SYMBOL-NAME
R1. REPEAT
CALLNAT 'NOPUSY4N' RC ...

DECIDE ON FIRST VALUE OF RC
VALUE 0, 20 IGNORE
VALUE 1 ESCAPE BOTTOM (R1.)
NONE VALUE
/* Error handling
END-DECIDE
/* process symbol here
IF RC NE 20
RESET VALUE
END-IF
END-REPEAT
```

### **Activation of Job Networks or Jobs**

You can activate job networks or jobs from your Natural application. The network of job definitions must exist in Entire Operations. Use:

```
CALLNAT 'NOPUAC4N'
FUNCTION RC OWNER NETWORK JOB SYMBOL-TABLE START TIME RUN
```

Meaning of the parameters:

Parameter	Format	
_ ***		- ~ · · · · · · · · · · · · · · · · · ·

FUNCTION	(A01)	(in)	Funct	ion code:		
			A	Activate, no hold for symbols.		
			1	Like <b>A</b> , but time frame as defined in schedule is used.		
			C	Change start time.		
			D	RUN > 0: Deactivate network, RUN = -1: Delete master-network.		
			Н	Activate, but hold task until released.		
			I	Set run number initial value. The next network run will use the next run number available after the number entered. The run number must be between 0 and the highest run number permitted.		
			R	Release activation.		
			2	Like <b>R</b> , but time frame as defined in schedule is used.		
			S	Repetition of an active job.		
			X	Network or job existence test only.		
RC	(N03) (out)		Retur	Return code:		
			0	Ok		
			1	Owner, network, job not found.		
			2	Activation entry not found.		
			3	Network not active.		
			4	Job cannot not be restarted.		
			5	Run number has already been used.		
			6	Run number not in valid range.		
			101	Invalid function code.		
			102	Parameters missing.		
OWNER	(A10)	(in)	Owner of the job network.  Note:  If a job is placed in 'Hold' status by means of the function <b>H</b> , the will be written to the log.			
NETWORK	(A10)	(in)	The job network.			
JOB	(A10)	(in)	Job. If empty, whole network is activated, deactivated or tested.			
SYMBOL-TABLE	(A10)	(in)	The special symbol table to be used for this activation. If empty, the symbol table from the network or job definition is used.			

START-TIME	(T)	(in)	If zero (0), the network is activated immediately. Otherwise, the network is activated at the designated time. The field can contain a date and the time.	
		(out)	Start time actually set.	
RUN	(P13)		Run number used by Entire Operations.	
		(in)	Functions A, H:	
			<ul> <li>When activating a single job, a existing run number can be entered. This should only be used for <b>post activations</b> of an active network.</li> <li>Functions C, D, R, S: must be an existing run number of the job network.</li> <li>Function X:</li> </ul>	
			• If <b>0</b> , the master network is tested. Otherwise, an active network with this run number is tested.	
		(out)	Functions A, H:	
			<ul> <li>If 0, the next free run number is assigned.</li> <li>If not 0, this number is used; if this number is still active, the next free number in ascending order is used.</li> </ul>	

#### Note:

You can use this function from outside Entire Operations, as well as from user routines within Entire Operations. This function is comparable to the manual activation of networks or jobs in the Entire Operations online system.

### **Activation with Symbol Modification**

- To activate a job or network and pass specific symbol values to this activation, proceed as follows
  - 1. Activate the network and keep it in hold, with function **H**.
  - 2. Use the returned run number to set symbols in the active symbol table(s) for this run. You must call the routine NOPUSY4N (see the subsection Accessing Entire Operations Symbols).
  - 3. After setting the symbol(s), release this activation with the  $\bf R$  function.

#### Note:

Active symbols, which are set here, will not be overwritten by a subsequent complete symbol table activation.

### Writing Messages to the Entire Operations Log

You can write messages to the Entire Operations log file using the following statement:

CALLNAT 'NOPULW7N'

TASK-ID MESSAGE-CODE MESSAGE DBENV OWNER NETWORK RUN JOB JOB-ID
LOG-TARGET

### Meaning of the parameters:

Parameter	Format	Usage			
TASK-ID	(A08)	(in)	User ID of person initiating the Entire Operations log messages. This can remain blank, in which case it is supplied with the content of the *USER variable. Entire Operations-internal use: name of the current Monitor task.		
MESSAGE-CODE	(N4)	(in)	Internal message code (not displayed); used for later message selection. Use message codes in the range <b>8000-8999</b> to avoid conflicts with internal messages.		
MESSAGE	(A70)	(in)	The message text.		
DBENV	(A10)	(ein)	Database environment; can remain blank.		
OWNER	(A10)	(in)	Owner; used for later message selection; can remain blank.		
NETWORK	(A10)	(in)	Network; used for later message selection; can remain blank.		
RUN	(I04)	(in)	Run number assigned to the message; can remain blank.		
JOB	(A10)	(in)	Job; used for later message selection; can remain blank.		
JOB-ID	(A10)	(in)	Operating system job identifier; can remain blank. Numeric values must be right-justified with leading zeros, for example: <b>0000004711</b> .		
LOG-TARGET	(A03)	This defines where the log message is to be written to.			
		NOP	to the Entire Operations Log (default).		
		so	to the Sysout of the current monitor task or of the batch job.		
		ALL	to the Log and to the Sysout.		

The time stamp and the originating Natural user ID are inserted automatically.

This routine is also invoked internally by the other user API routines.

# **Expanding Message Texts**

Entire Operations stores its message texts in the Log file in a language-independent, compressed format. To read the proper message text, you must use the following routine:

CALLNAT 'NOPUMT1N'
APPLIC-ID MESSAGE

### Meaning of the parameters:

Parameter	Format	Usage	
APPLIC-ID	(A08)	(in)	Name of the application from which the message is to be taken.
MESSAGE	(A70)	(in)	The message text. Input: compressed. Output: readable text.

#### **Notes:**

- 1. Expansion is only necessary if the message text begins with a semicolon ';'.
- 2. The language of the message text depends on the current value of \*LANGUAGE.

# **Importing Existing Jobs into the Active Queue**

You can activate a job in Entire Operations together with an existing operating system job number. This is possible if the job was submitted by any application and set to HOLD status.

Use the following statement:

```
CALLNAT 'NOPUJI3N'
FUNCTION RC OWNER NETWORK JOB RUN EXECUTION-NODE JOB-ID OS-JOB-NAME
```

### Meaning of the parameters:

Parameter	Format	Usage		
FUNCTION	(A01)	(in)	Functio	on code:
			I	Import job.
RC	(N03)	(out)	Return	code:
			0	Function ok.
			101	Invalid function code.
			102	Parameter(s) missing.

The parameters OWNER, NETWORK, JOB and RUN are optional. If any of these are empty, IMPORT is used instead as owner, network and/or job name. Entire Operations will try to find a job definition for these values. If a definition is found, the new active job entry is supplied from it. Otherwise, an ad-hoc activation is performed.

_			
OWNER	(A10)	(in)	Optional.
NETWORK	(A10)	(in)	Optional.
JOB	(A10)	(in)	Optional.
RUN	(P13)	(in)	Optional. If RUN is set to <b>zero</b> ( <b>0</b> ), Entire Operations assigns a new run number; otherwise, the job is activated under this run number. Jobs <b>imported with run number</b> must be defined with the special type R to prevent automatic activation.
EXECUTION-NODE	(N03)	(in)	Required.
JOB-ID	(A05)	(in)	Required. A <b>numeric</b> JOB-ID must be passed right-justified with leading zeroes, e.g.: 04711. An <b>alphanumeric</b> JOB-ID (BS2000) must be passed left-justified.
OS-JOB-NAME	(A08)	(in)	Optional; from operating system.

### **Display of Long Texts for Symbol Prompting**

You can display the symbol prompting long text for a specified symbol by using the following statement in your Natural application:

CALLNAT 'NOPUSP1N'
OWNER SYMBOL-TABLE SYMBOL-NAME RC PROMPT-TEXT

### Meaning of the parameters:

Parameter	Format	Usage			
OWNER	(A10)	(in) Owner of the symbol table.			
SYMBOL-TABLE	(A10)	(in) Name of the symbol table.			
SYMBOL-NAME	(A20)	(in)	(in) Name of the prompted symbol.		
RC	(N03)	(out)	nt) Return code:		
			0 Function ok.		
			1 Symbol not found.		
PROMPT-TEXT	(A70/1:5)	(out)	Symbol prompting long text (maximum 350 bytes).		

# **Generating Sysout File Names for BS2000/OSD**

The exit NOPFB2-N **may** be copied into the library SYSEOR to enable the user-defined generation of sysout file names in BS2000. Only **one** instance of this exit exists in the system and it is executed only if it is present. Otherwise, standard name generation is used.

This exit is called with the parameter list NOPXPL-A, so the first line of the exit must be:

DEFINE DATA PARAMETER USING NOPXPL-A

Meaning of the parameters in NOPXPL-A:

Parameter	Format	Use			
P-CALL-PLACE	(A03)	(in)	Constant 'FSB' (Filename Sysout BS2000).		
P-RC	(N04)	(out)	Return code:		
			0	Function ok (name generation ok)	
			1	A name could not be generated. The default name routine of Entire Operations is to be called.	
			2	A name could not be generated. The action (activation) is to be canceled.	
			If activation is canceled by a corresponding log entry	means of the name routine, will be written.	
P-RT	(A66)	(out)	Return code (not evaluated	1).	
P-OWNER	(A10)	(in)	Network owner.		
P-NETWORK	(A10)	(in)	Job network.		
P-JOB	(A10)	(in)	Job.		
P-RUN	(P13)	(in)	Run number.		
P-ACTIVATION-TIME	(T)	(in)	Activation time of the network.		
P-EXECUTION-NODE	(N03)	(in)	Entire System Server execution node.		
P-EXECUTION-OPSYS	(A08)	(in)	Operating system of Entire	e System Server node.	
P-SYMBOL-TABLE	(A10)	(in)	Name of the defined symb	ol table.	
P-FSB-OBJECT-TYPE	(A05)	(in)	File type:		
			SO-C	Current sysout file.	
			SO-P	Previous sysout file.	
			SO-P1	Previous sysout file without user ID.	
			SO-A	All sysout files of a job.	
P-FSB-USERID	(A08)	(in)	BS2000 user ID.		
P-FSB-CATID	(A04)	(in)	) BS2000 Cat ID.		
P-FSB-SUFFIX	(A02)	(in)	BS2000 suffix.		
P-SYSOUT-FILE	(A54)	(out)	tt) Generated file name.		

### **Rules for Exit Coding**

- File names must be created which are unique system-wide. Otherwise, the proper running ofEntire Operationsis no longer possible.
- File names which are unique system-wide can be produced by using the fields P-OWNER, P-NETWORK, P-RUN, P-JOB and P-FSB-SUFFIX simultaneously.

- You must be able to process all of the object types defined above.
- Except for the object type SO-P1, a fully-qualified file name must be created which includes the BS2000 user ID.
- A wildcard file entry valid for all sysout files of an active job must be created for the type SO-A. This type is used for deleting files.
- The field P-FSB-SUFFIX is transferred and must be used to differentiate sysout files when jobs are repeated. The caller ensures that the suffix for the currently active job is unique. For the object type SO-C, this field is blank.

#### Note:

If no file name is returned, then standard name generation is used.

### **Use with Work File Deletion**

Even in case of work file deletion (in connection with deactivation or cleanup) this exit is called, if it exists at all. The following will apply in this context:

- At any rate, an attempt is made to also delete work files, which correspond to the default name conventions of Entire Operations, independent of the existence of the exit.
- It is presumed that the exit will generate the run number with exactly 5 digits, which are enclosed by dots:
  - o aaa.00000.bbb (example: aaa.01234.bbb)

For the Entire Operations file search, this pattern is replaced by a wildcard:

- o aaa.00000.bbb --> aaa.\*.bbb
- If the name syntax of the exit is modified, files cannot be found any longer, the names of which have been generated before the modification. It is not recommended to exchange the exit, while active jobs are running in the operating system.

#### **Example:**

```
* NOPFB2-N
* EXAMPLE EXIT FOR SYSOUT FILE NAME
* MODIFICATIONS:
* 17.05.95 (139240) SYSOUT FILE NAME EXIT
                                                           SN210
* ______
DEFINE DATA PARAMETER USING NOPXPL-A
END-DEFINE
COMPRESS P-OWNER P-NETWORK P-RUN P-JOB
 INTO P-SYSOUT-FILE LEAVING NO SPACE
IF P-FSB-OBJECT-TYPE NE 'SO-P1'
* -- ALL OBJECT TYPES EXCEPT SO-P1 M U S T HAVE A BS2000 USERID --
 COMPRESS '$' P-FSB-USERID '.' P-SYSOUT-FILE
   INTO P-SYSOUT-FILE LEAVING NO SPACE
END-IF
IF P-FSB-OBJECT-TYPE EQ 'SO-A'
* -- ALL SYSOUT FILES FOR A JOB --
 COMPRESS P-SYSOUT-FILE '*'
   INTO P-SYSOUT-FILE LEAVING NO SPACE
ELSE
 COMPRESS P-SYSOUT-FILE '.S' P-FSB-SUFFIX
   INTO P-SYSOUT-FILE LEAVING NO SPACE
END-IF
               /* OK
RESET P-RC
END
```

# **Checking Use of BS2000 User IDs**

You can use the exit EORUCB1N contained in the library SYSEOR for a user-defined check, if Natural users are allowed to use BS2000 user IDs.

Meaning of the input and output fields:

Parameter	Format	Use		
P-RC	(N04)	(out)	Return code (not evaluated, should be <b>0</b> ).	
P-RT	(A70)	(out)	Return text (not evaluated).	
P-USER	(A08)	(in)	*USER in Natural.	
P-BS2000-USERID	(A08)	(in)	BS2000 user ID.	
P-ACCOUNT	(A08)	(in)	BS2000 account number.	
P-SUBMIT-PSWD	(A08)	(in)	BS2000 submit password.	

In the following you find the example of the exit EORUCB1N delivered with Entire Operations which you can adapt according to your need. The exit always returns P-RC=0 (authorized).

### **Example:**

\* NOPFB2-N

# **Job Schedule Inquiry and Modification**

You can inquire and modify a job schedule by using the following statement in your Natural application:

CALLNAT 'NOPUJS1N'
FUNCTION RC OWNER NETWORK RUN JOB
AVERAGE-TIME EARLIEST-START
LATEST-START DEADLINE

Meaning of the parameters:

Parameter	Format	Use		
FUNCTION	(A01)	(in)	Function code.  N inquire job schedule for the next job (in alphabetical order).  At the end of the list, RC = 1 is returned.  R inquire job schedule;  S change job schedule.	
RC	(N03)	(out)	Return code.  0 function OK;  1 owner, network, run number or job not found;  101 invalid function code;  102 parameter missing.  103 earliest start time invalid  104 latest start time invalid  105 end time invalid  106 latest start must be greater than earliest start  107 end time must be greater than latest start  108 job has already been started  109 earliest start must be greater than current time  110 job is in HOLD status.	
OWNER	(A10)	(in)	Owner of the network.	
NETWORK	(A10)	(in)	Job network.	
RUN	(P13)	(in)	Run number.     master data are inquired or modified.    else inquiry or modification is valid for one activation.	
JOB	(A10)	(in)	Job.	
AVERAGE-TIME	(I04)	(in/ out)	Expected run time tenths of a second.	
EARLIEST-START	(A14)	(in/ out)	Earliest possible start time. Format: YYYYMMDDHHIISS	
LATEST-START	(A14)	(in/ out)	Latest possible start time. Format: YYYYMMDDHHIISS	
DEADLINE	(A14)	(in/ out)	Deadline. Format: YYYYMMDDHHIISS	

# **Sub-networks: Inquire Calling Job or Called Network**

You can use this API to:

- find the current sub-network for a job of type NET;
- find the current job calling a sub-network.

Use the following statement:

```
CALLNAT 'NOPUSN1N'
FUNCTION RC OWNER NETWORK RUN JOB
```

Meaning of the parameters:

Parameter	Format	Use			
FUNCTION	(A01)	(in)	Function code.  C find calling job; S find sub-network.		
RC	(N03)	(out)	Return code.  O Function OK;  Input object not found;  wrong job type;  not a calling job;  not a calling job;  not a calling job;  parameter missing.		
OWNER	(A10)	(mod)	Owner of the network.		
NETWORK	(A10)	(mod)	Network.		
RUN	(P13)	(mod)	Run number.		
JOB	(A10)	(mod)	Job.		

The parameters OWNER, NETWORK, RUN and JOB are input and output parameters. They are overwritten with the values found by the API. Therefore the caller must supply these fields with new entries before each new call.

# **Starting and Stopping the Monitor Activity Log**

You can start and stop the monitor activity log using the following calls from your Natural application.

CALLNAT 'NOPMLA1N' FUNCTION

The parameters have the following meaning:

Parameter	Format	Use				
FUNCTION	(A01)	(in) Function code:				
		Y Starting the monitor activity log.				
		N Stopping the monitor activity log.				

The call of this API has the same effect as setting the field Log Monitor Activity in the Monitor Defaults.

This enables you to automatically start and stop the monitor activity log at particular times or on account of specific conditions.

# **Entire Operations Version Information**

You can use this API to find out the version of Entire Operations. Use the following statement:

CALLNAT 'NOPUVI2N' FUNCTION VERSION VERSION-DATE UPDATE-DATE

### Meaning of the parameters:

Parameter	Format	Use	
FUNCTION	(A01)	(in)	Function code. V Version information.
VERSION	(A08)	(out)	Version, for example V3.1.1.1.
VERSION-DATE	(A08)	(out)	Date of version. Format: YYYYMMDD.
UPDATE-DATE	(A08)	(out)	Date of last updates. Format: YYYYMMDD.

# **Example of Use of API-Routines**

The following is a list of the program NOPUT1-P contained in the Entire Operations library. The program can be invoked to find out how API routines react to real data. It shows how to code the calls of the supplied routines, and how to check the return codes.



# **Special Monitor Features and Batch Jobs**

This section covers the following topics:

- Monitor Start Network
- Cleanup in Batch Mode

### **Monitor Start Network**

You can define a job network to be executed after each Monitor start and before the activation of any other job.

If a network with the name MON-START is defined under the owner SYSDBA, it is executed at Monitor startup time.

### **Execution**

The start network is intended to run exclusively before any other network. Therefore, the absolute condition MON-START-RUNNING (owner SYSDBA) is set at activation time.

The setting of this condition is automatically taken over by the first job of the startup network. This job sets no conditions during end-of-job checking and actions.

While the startup network is running, a warning message is repeatedly written to the log.

During the execution of the startup network, the following Monitor activities are blocked:

- Schedule extraction
- Activation (except startup network)
- Cleanup

#### Note:

The absolute condition MON-START-RUNNING is reset, only if the whole startup network ends normally. Any other activity of the Monitor is blocked during execution of the startup network. If any error occurs in the startup network, the whole processing of other networks is blocked until a manual intervention. To force the normal processing to start, just reset the condition MON-START-RUNNING manually.

#### Use

Some possibilities for the use of the startup network are:

- Preparation of symbol tables for other networks;
- Activation of other networks:
- Condition setting:
- Any Entire System Server functions.

# **Cleanup in Batch Mode**

In addition to an automatic cleanup, or alternatively, you can also do a cleanup of the active database in batch mode outside of the Entire Operations Monitor.

Use a Natural batch job with the following commands:

LOGON SYSEOR CLEAN <function> <log-target> FIN

### **Parameter for CLEAN**

Use	Name	Description
function	ALL CLEAN	Cleanup, deactivation, deletion of work files Cleanup only
		Deactivation, deletion of work files only
log-target	NOP SO ALL	The cleanup is logged in the Entire Operations Log. The cleanup is logged in the Sysout of the batch job. The start and end messages of the cleanup are also logged in the Entire Operations Log. The cleanup is both logged in the Entire Operations Log and the Sysout of the batch job.

The batch cleanup can take place with the Monitor running or not. It is recommended to do the cleanup at times of low monitor utilization.

Like the automatic cleanup the batch cleanup should be performed at least once a day. Several runs a day are possible. This may be useful to reduce the data amount of each cleanup run.

The Entire Operations retention periods also apply to batch cleanup.

#### **Example**

CLEAN ALL SO complete cleanup, log after Sysout

### Cleanup of Mailbox Messages to SYSDBA

The cleanup of mailbox messages to SYSDBA can be executed in batch mode. To do this, use a Natural batch job including the following commands:

LOGON SYSEOR MX-DEL1P <yyyymmdd> <hhiiss> FIN

### Parameter for MX-DEL1P

Name	Description			
yyyymmdd	Day up to which cleanup is to take place.			
hhiiss	Time up to which cleanup is to take place.			

### Example

MX-DEL1P	20000201	100000

# **Special API Routines for Entire Operations**

This section covers the following topics:

- Introduction
- Extraction of Log Data to the Log Selection File
- Deletion of Old Data in the Log Selection File
- Output of Log Data to a File
- Printing Accounting Information from the Standard Entire Operations Log
- Monitor or Task Wait Time Modification
- Monitor Shutdown
- Monitor Start
- BS2000/OSD Jobs: Update of Submit User ID, Submit Password, Account Number

### Introduction

All programs documented here reside in the Entire Operations Natural library (SYSEOR). If not otherwise stated, all programs may be used in batch and online.

### **Required LFILE Assignments**

```
216 Entire Operations System File
173 Entire Operations Log File
215 Log Selection File
```

### **Log Selection File - Format 1**

An empty log selection file (LFILE=215) for accounting data is part of the NOP142 installation files.

The DDM for the above is EOR-LOG-SELECTION-1.

The DDM is delivered with descriptors on almost every field. It is up to the user to release descriptors which are not necessary.

The file can be read and evaluated with Natural and Super Natural.

#### DB 255, File 215 - Entire Operations Log Selection 1, Default Sequence

T	L	DB	Name	Format	S	D	Remarks			
*	EOR Log Selection									
	1	AA	LGS-RECORD-TYPE	A6	N	D				
*										
G	1	AB	LGS-BS2-DATA							
	2	AD	LGS-BS2-USERID	A8	N	D				
	2	AE	LGS-BS2-ACCOUNT	A8	N	D				

*							
G	1	AG	LGS-TIME-DATA				
	2	AH	LGS-CPU-TIME	P7.2	N	D	/* in sec.
	2	AI	LGS-JOB-START	T12	N	D	/* date + time
	2	AK	LGS-JOB-STOP	T12	N	D	/* date + time
	2	AM	LGS-JOB-ELAPSED	P13.0	N	D	/* in 1/10 sec.
*							
G	1	AN	LGS-DATA-3				
	2	AO	LGS-LOG-TIME	T12	N	D	/* date + time
	2	AP	LGS-OWNER	A10	N	D	
	2	AQ	LGS-NETWORK	A10	N	D	
	2	AR	LGS-RUN	P13.0	N	D	
	2	AS	LGS-JOB	A10	N	D	
	2	AT	LGS-STATE	A3	N	D	
	2	AU	LGS-JOB-TYPE	A3	N	D	
*							
	1	AY	LGS-EXECUTION-NODE	N3.0	N	D	
	1	AW	LGS-JOB-ID	A5	N	D	
	1	AX	LGS-OS-JOB-NAME	A8	N	D	
*			,				
*	Su	perd	escriptors				
*							
	1	AV	LGS-KEY-1	A30	N	S	
*			LGS-OWNER	(1-10)			
*			LGS-NETWORK	(1-10)			
*			LGS-JOB	(1-10)			

# **Extraction of Log Data to the Log Selection File**

### **Natural Program Call:**

LGAX1S-P P-DATE-FROM P-DATE-TO

#### **Parameters:**

Name	Format	Description
P-DATE-FROM (optional)	(A08)	Start date for the extraction in format YYYMMDD.
P-DATE-TO (optional)	(A08)	End date for the extraction in format YYYMMDD.

### **Notes:**

- 1. Start date and end date for the extraction are optional. If wanted, both parameters must be set. If the start date is smaller than the time stamp in the private control record (see note 2 and 3), the extraction is not performed.
- 2. Log data extraction always starts where the last extraction ended.
- 3. This time stamp is kept in a private control record. (When the program is started for the first time, the starting date 01.01.1993 is used).
- 4. The extraction data consists of accounting data (see the subsection Network and Job Accounting Data in Section Reporting).
- 5. New extraction data do not overwrite existing extraction data.

### **Deletion of Old Data in the Log Selection File**

### **Natural Program Call:**

LGAX1D-P P-RETENTION-DAYS

#### **Parameters:**

Name	Format	/*	Description
P-RETENTION-DAYS	(I2)	/*	Entries older than this parameter are deleted.

### **Output of Log Data to a File**

The output of log data for printing or further processing is described in the subsection Output of Log Information in Section Log Information.

# **Printing Accounting Information from the Standard Entire Operations Log**

### **Natural Program Call:**

LG-AP1-P P-TIME-FROM P-TIME-TO

### **Parameters:**

Name	Format	/*	Description
P-TIME-FROM	(A14)	<u>/*</u>	Format: YYYYMMDDHHIISS
P-TIME-TO	(A14)	<u>/*</u>	Format: YYYYMMDDHHIISS

### **Monitor or Task Wait Time Modification**

### **Natural Program Call:**

MO-WTM-P P-MONITOR-WAIT-TIME P-USERID [P-TASK-ID]

#### **Parameters:**

Name	Format	/*	Description
P-MONITOR-WAIT-TIME	(N8)	/*	In seconds.
P-USERID	(A8)	/*	For log.
P-TASK-ID	(I2)	<u>/*</u>	Number of a monitor task (optional).  If the number of an active monitor task is specified, <b>only</b> the wait time of this task will be modified.  If no task number is specified, the wait times of <b>all active monitor tasks</b> will be modified.

### Notes:

- 1. If a wait time less than 5 seconds is specified, the wait time is set to 5 seconds.
- 2. The modifications carried out using this program only apply until the end of the current monitor run.

# **Monitor Shutdown**

### **Natural Program Call:**

MO-SHD-P

### **Parameters:**

None.

### **Monitor Start**

### **Natural Program Call:**

MO-ST--P P-MONITOR-NODE

#### **Parameter:**

Name	Format	/*	Description
P-MONITOR	(I2)	/*	Value = 1 to 255 (Mainframe)

# BS2000/OSD Jobs: Update of Submit User ID, Submit Password, Account Number

### **Natural Program Call:**

```
BS2U01-P
P-OWNER P-USERID-OLD P-PW-OLD P-USERID-NEW P-PW-NEW
P-ACCOUNT-NEW
```

#### **Parameters:**

Name	Format	/*	Description
P-OWNER	(A10)	/*	Entire Operations owner of jobs to be modified.
P-USERID-OLD	(A8)	/*	BS2000 user ID to be exchanged.
P-PW-OLD	(A8)	/*	BS2000 submit password to be exchanged.
P-USERID-NEW	(A8)	/*	BS2000 new user ID.
P-PW-NEW	(A8)	/*	BS2000 new submit password.
P-ACCOUNT-NEW	(A8)	/*	BS2000 new account number.

#### **Notes:**

- 1. An asterisk \* for a parameter is converted to **blank**.
- 2. Job fields are only exchanged, if the EOR owner, the old BS2000 user ID, and the old submit password do match.
- 3. Fields are replaced, only if the new value is **not blank**.
- 4. A log is written to the screen. In batch mode, the log is printed to Natural printer 1. This printer must therefore be assigned in the JCL.